GRENADA

REPORT

ON THE

AGRICULTURAL DEPARTMENT

FOR THE YEAR

1956.

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COLONIAL DEVELOPMENT AND WELFARE SCHEME D.

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COLONIAL DEVELOPMENT AND WELFARE SCHEME D.

Fisheries Improvement.

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COLONIAL DEVELOPMENT AND WELFARE SCHEME D.

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Miss S. Lord	Clerical Assistant.

REPORT OF THE DEPARTMENT OF AGRICULTURE, GRENADA B.W.I., FOR THE YEAR ENDING 31ST DECEMBER, 1956.

SECTION I.

Agriculture in the Colony.

1. Precipitation was well distributed throughout the year except for short periods of dry days and high winds during the months of April, November and December.

2. Data from returning Stations are appended.

Cocoa Industry.

3. The season was considered a relatively good one at fair prices on the local market.

4. Export were as follows :

Destination	Cwt.	Bags	Value.
United Kingdom	5,799	3,246	$ 329,922.00
West Germany ..	1,797	1,005	101,219.00
Belgium ..	2,212	1,237	132,198.00
Australia ..	377	211	21,925.00
Denmark ..	900	504	44,197.00
South Africa ..	279	156	19,640.00
Holland ..	36	20	1,086.00
	11,400	6,379	$ 650,187.00

TABLE I.

Exports and Values of Cocoa.

Year	Exports (cwt)	Value ($)
1950 ..	40,227	2,434,634
1951 ..	48,504	3,576,116
1952 ..	54,178	3,537,395
1953 ..	61,128	3,852,773
1954 ..	51,362	4,959,403
1955 ..	47,327	4,158,807
1956 ..	11,400	650,187

Nutmeg Insdutry.

5. Production of nutmeg was short. Plantings and replacements are being effected wherever possible. Some trees, formerly thought battered beyond repair, by the 1955 hurricane, are alive and fruiting.

TABLE II.

Nutmeg delivered to the G.C.N.A.

	1955	1956
Cured in shell ..	5,097,276	1,391,325
Uncured in shell ..	1,899,362	279,636
Cracked Grinders ..	89,480	12,278
Whole Mace ..	364,544	122,019
Broken Mace ..	192,895	19,143

6. Prices in the nutmeg industry were considered good, this principally due to shortage of nutmeg and mace at all points of production.

7. Advances to growers were $480,418.06.

8. Exports of nutmegs totalled 35,626 cwt. valued at $3,462,053.00 and mace 1,169 cwt. valued at $461,970.00. The U.S.A. taking 19,168 cwt of nutmegs were the largest importers of nutmges while the United Kingdom with 972 cwt of mace were the largest importers of mace.

9. Nutmeg oil exports amounted to 2,385 lbs. valued at $21,675.00.

TABLE III.

Quantities and Values of Exports of Nutmegs, Mace and Nutmeg Oil.

Year	Nutmeg (cwt)	Mace (cwt)	Nutmeg Oil (lbs)	Total Value ($)
1950 ..	61,947	6,515	6,280	3,976,488
1951 ..	23,152	5,199	5,940	2,199,514
1952 ..	44,607	6,886	3,140	2,334,987
1953 ..	37,082	7,505	10,260	2,328,894
1954 ..	48,881	7,439	4,050	2,935,227
1955 ..	52,887	6,478	6,570	3,934,609
1956 ..	35,626	1,169	2,385	3,946,701

Lime Industry.

10. Exports of lime oil were 460 lbs valued at $2,904.00. As customary major portions of lime oil went to the United Kingdom.

TABLE IV.

Quantities and Values of Lime Oil and Lime Juice (raw).

Year	Lime Oil (lbs)	Lime Juice (gals)	Totalled Value ($)
1952 ..	3,945	128,080	91,807
1953 ..	6,193	83,280	94,591
1954 ..	10,270	1,600	64,600
1955 ..	3,631	23,480	33,488
1956 ..	460	33,520	10,786

Coconut Industry.

11. Exports of coconuts totalled 1,500 and 2,259 tons copra were exported.

12. During the year 1,340 boxes of laundry soap and 37,779 gallons coconut oil were manufactured locally for home consumption.

Banana Industry.

13. Interest continues keen in the production of bananas for export. Plant importation from Dominica and St. Lucia continued throughout the year. For 1956 exports amounted to 66,839 stems valued at $138,500.00.

Cotton Industry.

14. Cotton production in Carriacou for the year was 291 bales or 83,011 lbs. As customary, the crop was disposed of in Liverpool, price per lb was 52 cents.

Sugar Industry.

15. A total of 15,868 tons of canes were ground by the Grenada Sugar Factory for the 1956 crop. Sugar production was 1,403 tons. Tons cane per ton sugar worked out at 11.2. Poor quality peasant canes continue a problem.

16. Official rum production was 80,436 gallons proof rum.

Minor Agricultural Industries.

Livestock.

17. 355 poultry and game were exported at a value of $4,993.00.

SECTION II.

Work of the Department of Agriculture.

Botanic Gardens.

18. The Botanic Gardens was maintained in slightly improved conditions compared with 1955, the year of hurricane Janet. The following numbers of Economic and Ornamental plants were distributed:—

Grafted Mangoes.	166
Budded Citrus.	845
Ornamental Plants.	1,548

COCOA INDUSTRY IMPROVEMENT SCHEME.

Colonial Development and Welfare Scheme D. 612.

(Summary by B. J. A. Perryman, D.I.C.T.A., and A. M. Cruickshank, D.I.C.T.A.

Weather Conditions.

19. The total annual precipitation was less than that of the previous year, and also less than the mean for the past eight years. The monthly total rainfall was better distributed than the previous year, the rainfall figures for the months of January to May being higher this year than 1955.

20. This better distribution of rainfall during the early part of the year, which period is normally the dry season, greatly assisted the recovery of both old cocoa seedlings and clonal plots, a large number of which would have died in a normal dry season.

21. The rainfall figures for the Cocoa Stations are appended to this report.

Recovery from the Effects of the Hurricane in September, 1955.

22. The general recovery of nurseries and experimental plots from the effects of the hurricane of September, 1955, is far more advanced that anticipated. This also applies to a large number of clonal plots on estates and small holdings.

The Investigational Programme.

23. *General* :—Despite the fact that a little over one year has elapsed since the hurricane of 1955, the effects in terms of growth and yield are still evident on the expirements conducted by this scheme. The immediate post hurricane period was characterised by the rapid production of new foliage on all trees that survived. This was only natural as foliage must precede pod production. But a feature of most of the expirements was the severe reduction in yields. Since the yields of a crop is the attribute of serveral intrinsic and extrinsic factors this was not surprising. As a result of this lean period it would be unfair to make any immediate clonal or manurial comparison in any of the expirements.

24. (*a*) *The Clonal Trials* :—The period under review marks the eight year of these trials, planted as they were in 1948 on all three Cocoa Stations. Certain of the more promising clones have retained their rank as potentially high producers of previous years, but present yields have fallen off.

25. Routine cultural operations were again carried out during the year. These consisted of weeding, shade regulation, staking, cleaning contour drains and several drastic prunings. These latter were done with a view to confine each tree to a defined area.

26. One manurial application was made on all three stations for the year.

Mt. Horne	Ashenden	Maran
12 : 8 : 24 N.P.K. Mixture—2 lb. per tree.	2 : 1 : 1 : N.P.K. Mixture—2 lb. per tree.	3 : ½ : 1 : N.P.K. Mixture—2 lb. per tree.

27. *Pest and Disease Control.*—Occasional outbreak of thrips and beetles were controlled by spraying with wettable agrocide or Dieldrex and Lead Arsenate with Goodrite latex as a dispersing and sticking agent at Mt. Horne. At Maran agrocide and lead arsenate were used in a linseed oil-Teepol emulsion.

28. Frequent showers during the year resulted in a fairly high incidence of black pods which were removed and buried during harvesting.

29. Witches Broom occurrence was particularly rare.

30. (*b*) *The N.P.K. Manurial Trials.*—(3x2x2 partially confounded randomised blocks). The two such experiments at Maran and Mt. Horne were planted in 1949 and 1950 respectively. They therefore received their 7th and 6th Manurial applications in July.

31. The Manurial treatments of Nitrogen at three levels and Phosphate and Potash at two levels each are standard, but the rates of application increase annually to a specified maximum attainable at the tenth application.

	Suplhate of Ammonia			Tripple Superhposphate		Sulphate of Potash	
	No.	N1.	N2.	Po.	P1.	Ko.	K1.
Maran ..	Nil.	1⅓ lb.	2⅔ lb.	Nil.	1 lb.	Nil.	1⅓ lb.
Mt. Horne	Nil.	1⅓ lb.	2⅔	Nil.	1 lb.	Nil.	1⅓ lb.

32. Routine operations consisted of the usual weeding, pruning, shade regulation, staking and cleaning contour drains.

33. Both experiments were sprayed during the year whenever the occasion arose, to ward off attacks of thrips and beetles. At Mt. Horne recourse was made to lead arsenate and Dieldrex cheifly, whilst at Maran lead arsenate and agrocide were used in a linseed oil—teepol emulsion.

34. The 1955-56 crop analysis of the Mt. Horne N.P.K. Trial indicates that both potash and phosphate have exerted beneficial effects in the main plots, but their interaction did not attain significance.

35. With nitrogen, it was not surprising to discover that yields were enhanced by the first level of application, followed by a falling off at the heavier dressing.

36. Interpretation should however be guided by the general remarks above.

37. (*c*) *Pen Manure vs. its N.P.K. Equivalent with extra Nitrogen Trials.*—(2x2x2 partially confounded randomised blocks). Two such experiments were planted in 1950 at Mt. Horne and Ashenden. With a view to bring manurial applications in line with normal estate practice, these experiments have not received any treatments since their fifth application in 1954, because the original treatments were regarded as excessive. The proposed application for 1958 is at the rate of 32 tons pen manure per acre with its N.P.K. equivalent and extra Nitrogen. This treatment would be repeated every four years.

38. Routine operations during the year consisted of weeding, pruning, shade regulation and cleaning contour drains in both experiments.

39. The Mt. Horne Experiment was occasionally sprayed with agrocide, lead arsenate and Dieldrex together with Goodrite latex, all with a view to control thrips and beetles.

40. The 1955-56 Yield Analysis at Mt. Horne failed to revea any significant treatments differences, no doubt perhaps an aftermath of the hurricane.

41. (*d*) *Forking, Mulching and Forking-in-Mulch Trials.*—(4x2x2 randomised blocks). Such trials are being conducted at Mt. Horne Cocoa Station and Carrierre Estate, the latter through the kind co-operation of the management and owners.

42. *Mt. Horne :*—Since 1954 it was decided that 2,000 lbs of green mulch would be applied per plot per annum equivalent to 29,877 pounds per acre or 13.33 tons. Due to the initial difficulty of incorporating this quantity of mulch in its green state into the soil in the "Mulch-and-fork" plots, it was decided that the 2,000 lbs be applied in two applications of 1,000 lbs each, to each of the "Mulch" and "Mulch-and-fork" plots, followed by forking after the second application in the latter.

43. One thousand pounds of green mulch were therefore applied to these plots in February, the corresponding 1,000 lbs. having been applied in 1955. The "Mulch" and "Mulch-and fork" plots were forked in June. Another 1,000 lbs of green mulch were applied to the same plots in November and forking will take place after another such application. Mulches in each case consisted of Guatemala and elephant grass, weeds and shrubs.

44. In addition to these specific cultural treatments, weeding, pruning, shade regulation and cleaning drains were also carried out. The experiment was occasionally sprayed for beetles and thrips with lead arsenate and agrocide of dieldrex.

45. The 1955-56 Crop yield analysis indicates that mulching and forking have given small positive responses. Their interaction was however of zero order.

46. *Carriere Estate :*—This experiment was weeded whenever it was thought necessary ; contour drains were also cleaned and shade regulated.

47. The first application of mulches was made in July to all "Mulch" and "Mulch-and fork" plots at the rate of 1,000 lbs per plot.

48. The growth of trees in this experiment with few exceptions has been good, some of the more precious clones are bearing and yield data shall commence in 1957.

49. (*e*) *Liming and Manurial Trial :*—Planted in 1954 at Hope Estate this experiment is now two years old. The growth of the trees is exceptionally good and there have been occasional instances of trees carrying a few ripe pods. No manurial treatment was applied during the year but weeding was carried out whenever it was thought necessary.

50. (*f*) *Estate Clonal Trials :*—There are five such experiments under the control of the scheme. Two at Carriere Estate, and one each at Grand Bras, Hope and LaTaste estates. With one or two exceptions the growth in these experiments has been very good. Staff permitting, the supervision of these experiments could be increased to the point where fortnighlty visits can be arranged. The more advanced experiments would be recorded in 1957.

Plant Propagation.

51. As a result of the hurricane of September 1955 it was decided to increase the output of planting material to 500,000 plants per annum within the shortest possible time. The estimated production of the existing propagators on the three cocoa stations is 200,000 rooted cuttings per annum and to increase the production of plants to 500,000 per annum it was decided that the new chip budding method should be adopted and 300,000 budded plants produced.

52. The limiting factor for increasing planting material of either rooted cuttings or budded plants is the inadequate nursery areas for the production of cuttings and or budwood. The nursery areas were therefore extended at Mirabeau, on lands loaned from the Medical Department, and also at Dunfermline on lands to be acquired by Government. The latter was only possible through the co-operation of the owners.

53. *Production of rooted cuttings.*—The following table shows both the RE, rooting efficiency, and PE, propagating efficiency of the cocoa stations, as well as other information from which these indices have been computed. The last column, "over all figures", is the cumulative totals for all three stations; the overall figures for the previous years are also shown for comparison :

	Boulogne	Ashenden	Maran	Overall Figures 1956	1955
(*a*) Number of cuttings set ..	196,968	112,872	53,879	363,719	262,011
(*b*) Number of cuttings rooted and placed on storage floors ..	139,037	58,908	32,106	230,051	174,413
RE (Rooting efficiency) ..	71%	52%	60%	63%	67%
(*c*) Number of plants on storage floors on 1st January 1956 ..	92,384	59,211	21,968	173,563	69,414
(*d*) Number of plants produced during the year	136,985	59,951	27,454	224,390	174,007
(*e*) Total number of plants in storage during the year i.e. (*d*) & (*c*) ..	229,369	119,162	49,422	397,953	243,421
(*f*) Total number of plants which died during the year in storage	14,332	6,444	1,473	22,249	22,053
(*g*) Per cent of deaths of number of plants in storage	6	5	3	6	9
(*h*) Per cent survivals ..	94	95	97	94	91
(*i*) Number of plants that would be distributed from the number of cuttings set, i.e. (*h*) & (*b*)—100	130,695	55,962	31,142	216,248	156,890
(*j*) PE, Propagating Efficiency, i.e. 100x(i)—(a)	66%	50%	58%	59%	60%

54. The overall rooting efficiency, droped from 67% in the previous year to 63%, and the propagating efficiency decreased by 1%.

55. The following table shows the rooting efficiency of single leaf cutting propagated on the cocoa stations :—

	Boulogne	Ashenden	Maran	Overall Figures.
No. of cuttings set ..	38,945	33,573	3,854	76,372
No. rooted and potted	24,894	19,351	2,090	46,335
% Rooted and potted ..	64	58	54	61

56. The humidifying chamber equipped with a Bahnson humidifier at the Mt. Horne Cocoa Station, which was described in the Annual Report for 1955, was damaged by the hurricane. This together with the damaged and over exposed condition of the nurseries prevented its operation before July.

57. The following table shows the results of four batches of cuttings which were rooted in this chamber in July, August, October and November, respectively :—

	No. of Cuttings Set.	Rooted. No.	%
1st Setting in July ..	3,210	2,696	84
2nd Setting in August ..	2,876	1,973	69
3rd Setting in October ..	3,450	2,298	67
4th Setting in November ..	3,846	2,704	70
Totals	13,382	9,671	72

58. It is of interest to observe that the rooting efficiency of this method of propagation is as high as that of the closed bin type of propagators at Boulogne with stem cuttings.

59. In the open spray beds at the Ashenden Cocoa Station, out of a total of 11,883 cuttings set 43% rooted.

60. *Production and budded plants :*—Preliminary trials on a limited scale were intiated during the year, adopting the chip budding method described by Topper in Jamaica and also the patch bud technique. The results have not been very encouraging. Out of a total of 1,007, inverted T buds inserted on seedlings stocks grown on rasied beds, 684 were alive when they were untaped three weeks after budding.

61. On seedlings grown in baskets only 172 were alive out of a total of 802 buds inserted, three weeks after budding.

62. Saran elliptical yarn shade material to provide 52% and 67% shade was ordered for trial during the year. It was discovered that the 52% shade material allowed too much light to penetrate for the storage of plants. The 67% degree of shade material can be used for shade over storage floors, but there is a tendency for the plants to develop nitrogen deficency symptoms especially during the young stages of development. This condition can, however, be corrected by the application of Urea to the plants at fortnightly intervals, in addition to the normal manurial treatment.

63. The 67% degree of Saran shade material did not provide sufficient shade for rooting cuttings efficiently in the open spray beds.

64. The 52% degree of shade Saran material when doubled, provided optimum conditions for the storage of plants immediately after removal from the propagating bins or humidifying chamber.

Plant Distribution.

65. The following table shows the number of plants distributed for (a) nursery expansion, (b) supplies or replacements and (c) originals and the acreage equivalent; comparative figures are given for 1955.

	Nurseries.			Originals.		
Stations.	Cocoa Stations	Estates	Supplies or Replacements	Number	Acreage Equivalent	Total No. Distributed.
Boulogne ..	3,812	3,351	60,558	1,525	3.5	69,246
Ashenden ..	1,073	334	47,512	1,239	3.0	50,158
Maran ..	742	1,721	16,104	—	—	18,567
Totals ..	5,627	5,406	124,174	2,764	6.5	137,971
Totals 1955	3,747	—	43,898	73,436	169	121,081

66. The total number of plants distributed fell short of the estimated production of propagators, but this was due to the poor condition of the nurseries during the first half of the year, brought on as a result of the hurricane in September of the previous year. It is estimated that the number of rooted cocoa cuttings that shall be available for distribution in 1957 shall be 220,000 plants. It is not possible at this stage to estimate the number of budded plants that shall be available for distribution in 1957.

67. From the table it shall be observed that most of the plants distributed were utilised for replacing blank pickets in existing clonal fields which died as a result of the hurricane of September, 1955.

Applications for Rooted Cocoa Cuttings for Planting in 1957.

68. A record number of 936 applications were received for 1,001,360 rooted cocoa cuttings for planting in 1957, the equivalent of approximately 2,600 acres. The previous year 660 applications were received for 481,480 rooted cuttings.

69. This great increase in the demand for clones is due to the hurricane of September 1955, which caused large areas of both old seedling cocoa and nutmegs to be destroyed.

70. The number of plants applied for exceeds the total estimated production of the existing propagators approximately by five times, and applicants requests shall have to be reduced by eighty per cent.

Buildings, Roads, Etc.

71. During the latter part of the year the following was accomplished at the Ashenden Cocoa Station :—

An Arcon storage shed, 100 ft. x 30ft, covered with alternate sheets of corrugated aluminium sheeting and glass was erected.

72. A garage and storeroom were erected, and also a cattle pen.

73. A new storage shed was erected, with an oiled floor and which shall be covered with Saran shade material.

74. The main roads on the station were re-surfaced.

The Cocoa Rehabilitation Board.

75. Two meetings of the Board were convened during the year. The main topics discussed were the expansion of the scheme to increase plant production consequent on the hurricane of September, 1955, and the estimates of revenue and expenditure for the year 1957, which had to be presented in a new form, in accordance with the Cocoa Rehabilitation (Amendment) Regulation, 1956 (S.R. & O. No. 35 of 1956).

Financing the Scheme.

76. Government finally approved that any Cocoa Cess Funds that were available on the 31st December, 1955, should be kept in reserve for the continuation of the scheme at the expiry of the Hurricane Rehabilitation Funds.

77. It was also approved that the scheme should be financed from current Cess funds collected, and local revenue derived from the stations, and the deficit between the sum of these amounts and the total estimated expenditure, shall be met from funds provided under the Grenada Hurricane Rehabilitation Grant, for a period of three years in the first instance.

Visits to and from other Areas.

78. Messrs. C. J. R. Bridge, and J. F. Pryde, both staff members of the Colonial Development Corporation, and who are now studying at the Imperial College of Tropical Agriculture, visited the colony in connection with the work of the scheme.

79. Mr. D. H. Urquhart, also visited the stations during his short visit to the colony.

80. Mr. D. A. Perryman, Agricultural Officer (Cocoa), attended the Cocoa Tour in Trinidad, in January, sponsored by the Caribbean Commission.

81. This officer also attended the sixth meeting of the Inter-American Technical Cacao Committee, held at Salvador, Bahia, Brazil in May.

82. Mr. Perryman, at the request of the Government of Dominica, visited that island in August in connection with a scheme for the increased production of rooted cocoa cuttings for that island.

83. Mr. A. M. Cruickshank, Agricultural Assistant (Cocoa), attended the Coffee Tour in Jamaica under the joint sponsorship of the Caribbean Commission and the Government of Jamaica, in October.

Staff Notes.

84. Mr. George L. Ogilvie, formerly Junior Agricultural Assistant, was transferred on promotion as Agricultural Assistant to the extension division of the Department of Agriculture.

85. Mr. N. D. Nedd, Senior Agricultural Instructor, and officer-in-charge of the Ashenden Cocoa Station, left the colony to attend a one year course at the Eastern Caribbean Farm Institute in Trinidad.

86. Mr. B. A. Pitt, Junior Agricultural Instructor, acted vice Mr. Nedd as Officer-in-Charge of the Ashenden Cocoa Station.

87. The other Junior Field staff members attached to the scheme were transferred to the extension division on the Department of Agriculture.

Staff Members.

D. A. Perryman, D.I.C.T.A., ..	Agricultural Officer, (Cocoa),
A. M. Crucikshank, D.I.C.T.A.,	Agricultural Assistant (Cocoa),
N. D. Nedd, ...	Senior Agricultural Instructor,
B. A. Pitt, ...	Acting Senior Agricultural Instructor,
D. Fletcher	Foreman, Boulogne Propagation Station,
J. Marshall	Foreman, Maran Propagation Station,
R. Honore, ...	Acting Foreman, Ashenden Cocoa Station.

Clerical Staff.

E. N. Barriteau,
K. J. Nedd,
F. M. Thomas.

Rainfall Figures.

Cocoa Stations.

Station.		Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Boulogne ..	1956	9.38	3.94	3.17	2.53	3.84	7.63	7.75	9.43	5.63	7.49	13.16	6.40
	9 Year mean	5.42	5.38	3.04	2.65	4.15	7.76	7.59	8.94	8.28	9.63	14.29	10.83
Ashenden ..	1956	13.33	9.31	8.51	4.72	3.81	10.04	8.70	13.65	4.50	9.02	9.00	12.22
	9 Year mean	8.03	8.86	4.81	3.99	5.10	9.75	10.52	10.76	10.47	11.71	15.24	12.39
Maran	1956	14.06	6.26	5.86	4.52	5.30	11.10	12.21	14.83	5.27	13.41	17.10	8.33
	9 Year mean	6.81	8.52	3.94	3.21	5.64	10.96	12.40	12.57	12.55	11.32	15.36	10.52
Mt. Horne ..	1955	10.76	4.20	4.63	2.98	3.70	7.76	9.12	11.07	6.27	8.90	19.80	6.25
	4 Year mean	9.09	5.20	2.93	2.71	4.90	6.77	7.62	8.42	11.26	10.21	20.26	8.22

Annual Rainfall Figures.

Station.	1948	1949	1950	1951	1952	1953	1954	1955	1956	9 Year mean.
Boulogne ..	77.78	85.45	106.37	106.92	74.98	87.20	87.37	88.67	80.35	88.34
Ashenden ..	103.75	90.24	128.02	112.06	84.56	121.21	133.25	124.73	106.81	111.63
Maran ..	106.20	95.64	120.52	143.47	88.82	106.86	119.77	124.83	118.25	113.80
Mt. Horne ..	—	—	—	—	—	96.02	101.31	96.31	95.94	* 97.59

*4 Year mean.

Development of Small Scale Agriculture.

Colonial Development and Welfare Scheme D. 1904.
A. Westerhall Agricultural Station and District I Grenada South.

(Report by K. I. Rush—Senior Agricultural Instructor.)

88. *Weather Conditions* :—The total rainfall at Westerhall Agricultural Station for the year, 1956 was 70.76 inches. Although they have been intermittent short dry spells, the weather conditions have been favourable, especially for the recovery of nurseries and established crops that suffered one way or other as a result of the hurricane.

89. *Staff* :—The activietes on the Station and in the district were conducted by the following officers for the period under review :—

Mr. E. O. Barrett—Senior Agricultural Instructor, up to 4th April with three Junior Instructors.

„ E. W. John—Senior Agricultural Instructor, up to 28th May with three Junior Agricultural Instructors.

„ E. Payne—Cane Farming Officer up to 11th September with six Junior Agricultural Instructors.

„ K. I. Rush—Senior Agricultural Instructor took over from Mr. E. Payne on the 11th September, 1956.

90. *Soil Conservation* :—There was the need for soil conservation work in Grenada as a whole, but since 'Hurricane Janet' the need for such work has reached the limit. In the past the subsidy for such work was calculated on 50% of the actual work done, but with the advent of rehabilitation the grant is based on six ($6.00) dollars per acre.

91. Due to pressure of work, there were very few soil conservation grants taken out in the early part, but coming to the latter part of the year over seventy grants were taken out.

92. The position remains quite hopeful for the coming year to get many more people interested in protecting and maintaining the fertility of the soil.

93. Soil Conservation work has been centered at Storm or Head drains, grass and vegetative barriers and gully control. No grant is given for intermediate drains, as the cost is met from the Long Term Loan Scheme.

94. *Crop Progress.*—Weather conditions for the greater part of the year were very favourable, and food crops benefitted immensely as a result, inclusive of other crops of a permanent nature.

95. *Banana.*—Up to 31st December, 1956 92,271 plants were received for South Grenada comprising areas IX A, IX B, and X.

Distributions were as follows:

Estates	18,414 plants	
Peasants	23,631 „	
Other distributions up to 30th June 1956	49,573	(including estates and peasants).
Shortages and Spoilts ..	653	
	92,271 plants.	

96. There are only two nurseries in this district, the Park and Marlmount estates. They both are in good condition.

97. As bananas was not considered exactly, to be a commerical crop to Grenada as in the past, it was just meet and right to lay down demonstration plots as teaching instruments, whereby the people would put same in practice and recaptivate the commerciality of bananas in order to bring in quick revenue to the island.

98. *Coconut.*—A little over 3,000 plants were received from the Botanic Station and distributed in the district, especially to participants in the Long Term Loan Scheme.

99. It is the concensus of opinion in this district, that the dwarf coconuts are not suitable for making copra, but after several lengthly discussions some of the people were convinced that although the dwarf nuts are thinner and would give less oil, the amount produced per year is far higher than the tall trees, therefore, this would offset the rank difference. A tall tree would produce 60-80 nuts, while a dwarf tree would produce from 200-300 nuts per year.

100. *Cocoa.*—Quite a number of inspections were carried out for planting clonal cocoa in 1957. Due to the favourable weather conditions some clonal cocoa plots have recovered nicely. Cocoa has borne very well some places and a good crop is anticipated.

101. Both old and clonal cocoa are attacked badly by thrips and beetles and the infestation is spreading day by day.

102. *Nutmegs.*—The trees have borne very well and a good crop is expected. Although there are less trees, the production per tree is greater and the price per pound is higher.

103. *Other Crops.— Yams.*—This crop is to be considered a poor one and plants would have to be imported to be sold for planting in 1957.

104. *Sweet Potato.*—This crop bore well and people are still planting, although rats are doing damage to the crop. The cheif pest apart from the above is Scarabee weevil (Euscepes Batatae).

105. *Corn.*—This crop was an entire failure due to damage by rats : although the corn was attacked by the Ear worm (Laphygma frugiperda) also.

106. *Pigeon Peas.*—This crop has borne well in every quarter and there will be a good lot of dry peas.

Lectures and Talks to Gatherings Etc.

107. The Agricultural Rehabilitation Commissioner—Mr. J. Wright spoke to the people of Perdmontemps, Vincennes and Theabaide on the organisation of the Central Agricultural Rehabilitation Committee and the several schemes which fall directly under him. These meetings were organised by the District Agricultural Officer. At Theabaide, the Acting Superintendent of Agriculture—Mr. G. Southwell and the Principal Assistant Secretary to the Ministry of Trade and Production, Mr. F. Phillip accompanied Mr. Wright. Mr. Phillip spoke on the Rat Campaign.

108. On the 12th July, the farmers of Sauteurs, Samaritan and Victoria held an Achievement Day at River Sallee Government School where the writer ran a commentary on soil conservation practices.

109. The District Agricultural Officer gave a demonstration on the 9th November as to the preparation of seed boxes and the sowing of vegetable seeds to the Home Economics Class conducted by Miss Haglund at the Youth Centre building.

110. On the 2nd November, the Acting Labour Commissioner Mr. DaBreo showed a film on labour on the station.

111. On the 13th November the Governor and Mr. Wright paid a visit to the district, and were taken to a few peasant holdings and the Bailies Bacolet Estate.

112. The Cocoa Officer—Mr. D. A. Perryman conducted a Field Day tour on the 27th November at St. Andrew's for the District Agricultural Officer and his staff.

113. I visited Ashenden Cocoa Station on request of the Officer-in-Charge—Mr. B. A. Pitt to speak to the apprentices on "care and management of plants."

114. During banana cultivation week, five demonstrations were held and the attendance was no less than fair and much appreciation was expressed.

115. Mr. Gooding the Plant Breeder from I.C.T.A., accompanied by the Acting Agricultural Officer (General), and the Banana Officer were taken around to select certain food crops as tania, pigeon peas and sweet potatoes.

Visits and Advisory Work.

116. The following places were visited in this connection :—

Government House Lands :—Advised on the preparation of seed boxes, rotation of vegetables and the cultivation of bananas.

Perdmontemps.—Advised on soil conservation and the taking out of short term loans.

Windsor Forest.—Advised on soil conservation and banana cultivation.

Morne Jaloux.—Advised on Market gardening and orchard cultivation.

Pomme Rose.—Advised on soil conservation and banana cultivation.

Baillies Bacolet.—Encouraged to plant citrus and avocados.

Westerhall and Calivigny.—Advised on the planting of grass for stock.

Tempe.—Advised on the pruning of clonal cocoa and the establishment of wind breaks.

Vineyard.—Advised on the planting of khus-khus grass, gliricidia and shade for cocoa.

Rehabilitation.

117. *Fertilizers.*—There are three fertilizers depots viz:—LaSagesse, Scott St., and Woodlands, Plant Protection Depot. The fertilizers at Woodlands were transferred to the Plant Protection Depot.

Fertilizers received and sold to date are as follows :—

	Received	Sales. L.P.O. & Cash	Balance.
La Sagesse.			
8. 15. 25	154,560	69,911	84,649
Scott. St.			
8. 15. 25.	89,600	52,282	57,318
Plant Protection Depot			
12. 8. 24.	400,960	130,256	270,704
Sulphate of Potash	45,024	43,680	1,344
Tri-Superphosphate	21,280	21,056	224
Sulphate of Ammonia ..	43,680	43,680	—
Total	755,104	340,865	414,239

118. Nearly all extension work presently is based on rehabilitation of farms, estates and holdings: as such soil conservation, Long Term and Short Term Loans come under this heading.

119. It is gratifying to see the progress made along this line.

Agricultural Station.

120. The station as a whole, was in a very poor state and likewise the crops planted. Most of the crops were smothered and those that survived produced very little. These are the crops planted, Increase peas, Black-eye peas, corn, yams, sweet potatoes and cassava.

121. In the month of November a small grant was allocated for the working of the station to the end of the year.

122. Three varieties of pine apples were received from Jamaica on the 7th September as follows:—

Spanish Red	.. ..	558 plants.
Natal Queen	.. ..	681 „
Sugar Loaf	.. ..	1,449 „

about 20% were rotten.

123. *Sugar Cane* :—Plants were procured from Calivigny estate for establishing a plot on the station. Four varieties were obtained: 41, 227, 4098, 34, 104, 37161.

Report on West Grenada District.

Station (B).

(By E. O. Barrett).

124. In the earlier part of the year some amount of planting was carried out in field 1, but due to the poor condition of plots in this field they were all abandoned, during the course of the year and a Citrus orchard established in this field.

125. The banana plots in field 4 did well in spite of lack of attention throughout the year. Three plots were replanted towards the end of the year.

126. Harvesting for the year was as follows :—

Reaped for export	—	193 stems weighing	4,942 lbs.
Sold locally		39 „ „	591 „
Fed to boar		12 „ „	183 „
Total reaped		244 „ „	5,716 „

127. Several spraying trials with different fungicides were carried out by the Plant Protection Division during the course of the year. A series of photographs on the different aspects of banana cultivation were made in these plots by the Banana Officer.

(b) Cocoa.

128. The Clonal Cocoa plot did well during the year. Supplying of plants killed by "Janet" was done during September and at the end of the year the plot was in a good condition and flowering heavily.

(c) Citrus.

129. The was a great demand for Citrus plants which was met to a fair extent by the supply of plants from our nuseries. At the end of the year some orders were however still outstanding. During the year the following plants were lifted for sale, both here and in Carriacou.

Grapefruits					Limes		Oranges				
Marsh-seedless	Duncan	Thompson Pink	Beausejour special	Total	Sweet	Total	Valencia	Washington Navel	E.S.H 1	E.S.H 2	Total
858	108	13	91	1,071	5	5	617	101	11	19	748

TOTAL .. 1,823

130. Of these plants 320 were transferred to Carriacou and the remaining plants sold locally. In addition 60 plants were lifted for planting on the station.

131. An orchard of 60 plants of all the several varieties produced in our nurseries was established in Field 1 during the year, and at the end of the year was doing fairly well.

(2) Foods Crops.

132. (a) *Yams*.—Over 3,000 lbs of yams was harvested in the early part of the year. Plants were reserved for the planting of 5 plots, and the remainder sold to the Food Storage Centre. Replanting was done during March and April, one plot being planted with several varieties introduced from St. Vincent. Staking on the tent-system was done during June. The Permanent Manurial Trial with yams entered its final year and at the end of the year all plots gave promise of a fairly good yield.

(b) Sweet Potatoes.

133. Rats were a major set back to this crop during the year but over 500 lbs of potatoes were harvested. A potato variety trial was conducted in the earlier part of the year, and towards the end of the year a start was made on a Potato observation plot in which over 25 varieties of sweet potato were placed under observation.

(c) Tannias.

134. Earlier in the year 850 lbs of tannias was harvested, of this amount 400 lbs was sent to Westerhall as feed for pigs, 120 lbs. fed to the boar on the station, and the remainder sold locally. Over 570 lbs. of tannia plants was distributed to planters and the banana plots in Field 1 were interplanted with tannias.

(d) Corn.

135. The spring planting of corn was badly affected by rats and black birds which destroyed the better part of the crop. Sufficient plants to replant one plot was harvested, but further results to increase this amount of plants met with failure due to the lack of funds between August and September.

(e) Vegetable Crops.

136. Plots of Cabbage, tomato, string-beans, carrots, turnips, beets, black-eye peas, green grain and lettuce, were grown during the year in order to give practice to the apprentices. These crops did fairly well.

(3) Other Crops.

137. (*a*) *Canes.*—The Cane propagation plot was maintained throughout the year. In the latter part of the period a new variety B 49119 was introduced from Barbados and planted out. Cutting back of plots and interforking and fertilizing of ratoons were done during December.

138. (*b*) *Pine-Apple.*—A pine-apple nursery of 2,380, plants (420 Natal Queen, 557 Red Spanish, 1,403 Sugar Loaf) was established during September and was doing fairly well at the end of the year.

139. (*c*) *Coconuts.*—Our coconut plot thrived fairly well during the year. The dwarf coconut nursery established late last year to early this year was abandoned as all plants were distributed to farmers in this district.

140. (*d*) *Plants Introduced.*—A few Ackee plants were grown from seeds introduced from Jamaica by the Banana Officer. Three (3) plants were set out on the Station and the remaining plants potted for distribution to other Stations. A few Annatto plants were also grown.

(b) Livestock.

141. (*a*) Two bull calves were born during the earlier part of the year but both died during the course of the year. One heifer was sold on Veterinary advice, since she was discovered to be tubercular.

Cows ..	.. 4
Heifers ..	.. 2
Jack ..	.. 1
Jennies ..	.. 1
Boar ..	.. 1
Ram ..	.. 1
Buck ..	.. 1

142. The boar used earlier this year became too heavy and sluggish for service and was exchanged towards the middle of the year for a younger boar.

(*b*) Service for the year were :—

Boar ..	.. 13
Buck ..	.. 8
Ram ..	.. 1
Jack ..	.. —
Total	.. 22

(*c*) Pastures were in poor condition at the end of the year, while grass plots were maintained in a fair condition.

(*d*) Fences were in poor condition but repairing was started towards the end of the year.

(c) Experiments.

143. (1) Reaping of the Permanent Manurial Trial (yams) earlier in the year gave the following results :—

Plot No.	Manurial Treatments N. P. K.	No. of holes in Block.	Weight in lbs.	Remarks
Block 1	0 0 0	48	96 lbs.	
„ 2	1 2 1	48	92 „	
„ 3	1 0 2	47	119 „	
„ 4	1 1 0	45	108 „	
„ 5	2 2 0	46	113 „	—
„ 6	0 1 1	48	96 „	—
„ 7	2 1 2	48	111 „	—
„ 8	2 0 1	47	81 „	—
„ 9	0 2 2	46	83 „	—
„ 10	2 1 0	46	93 „	—
„ 11	0 1 2	48	92 „	—
„ 12	2 2 1	48	76 „	—
„ 13	1 0 0	48	84 „	—
„ 14	0 0 1	46	51 „	—
„ 15	1 1 1	46	63 „	—
„ 16	0 2 0	47	45 „	—
„ 17	2 0 2	48	77 „	—
„ 18	1 1 2	48	52 „	—
„ 19	2 1 2	48	48 „	—
„ 20	0 2 0	48	44 „	—
„ 21	1 0 1	48	39 „	—
„ 22	1 2 2	36	35 „	—
„ 23	2 0 0	39	30 „	—
„ 24	0 1 0	41	32 „	—
„ 25	1 2 0	44	22 „	—
„ 26	2 2 2	47	46 „	—
„ 27	0 2 1	48	49 „	—
Total		1,247	1,877	

144. The method of planting Trial (yams) was also harvested early in the year. Replanting for the 1956-1957 crop was done during March. Reaping gave the following results :—

Method of Planting	Area.	No. of Holes.	Weight. in lbs.	Remarks.
(1)Trench on Bank ..	0.005 (acrs)	40	51½ lbs.	Planting on bank.
(2) Trench only ..	0.005 „	40	54 „	Planting in trench.
(3) Furrows	0.005 „	40	41 „	Method used at Agricultural Stations.
(4) Mounds	0.005 „	40	37 „	Method largerly used in Jamaica.
(5) Moe chaps (yams only)	0.005 „	40	18 „	Method used by Mt. Moritz peasants.
(6) Moe chaps (yams and (Tannias)	0.005 „	40 yams, 40 Tannias	23 yams 13 Tannias	Method used by Mt. Moritz peasants.

145. (3) Sweet Potato Variety Trial plot was harvested during February and showed the following results :—

Varieties.	Area.	Weight 1st. Reaping 9.2.56.	Weight 2nd. Reaping 27.2.56.	Total Weight.	Remarks.
(1) V. 14	0.014 (acs)	64 lbs.	22 lbs.	86 lbs.	—
(2) Caroline Lee ..	0.014 „	52 „	25 „	77 „	—
(3) David	0.014 „	30 „	20 „	50 „	—
(4) B. 5.	0.014 „	42 „	25 „	67 „	—
(5) Flavrius ..	0.014 „	91 „	20 „	111 „	—
Total ..	0.07	279 „	112 „	391 „	—

(d) General.

146. During the earlier part of the year, until the end of July eight (8) apprentices were in training here. At the end of July they left for Mt. Horne and Westerhall for practice in cocoa propogation and livestock management, respectively. They returned here in September for Exams. Seven took the exams, which were passed by four apprentices. One apprentice did not take the exams since he was in the hospital at the time.

147. The course of training was changed during the latter part of the year, the theoretical part of the course being deleted. Eight fellows spent six weeks (from the middle of November to the end of December) here on the start of the new course.

Report on West Grenada, Mt. Moritz Agricultural Station.

(a) District.

148. (*a*) *Weather.*—The weather during this year was very favourable to farmers, there being no marked dry-season at all during the whole year. During October and November heavy rains accompanied by high winds and rough seas caused some damage to crops and a few small slides.

149. Rainfall for three points in this district was :—

	Jan.	Feb.	March	April	May.	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Mt. Moritz	12.14	5.65	4.25	2.86	3.63	9.02	9.01	14.86	4.78	7.55	—	—	—
Annandale	15.64	10.14	9.92	5.45	7.08	9.98	11.82	21.36	6.37	12.47	—	—	—
Belvedere	22.87	11.28	8.06	6.04	7.29	11.58	13.31	19.12	7.82	13.99	—	—	—

(b) Crops.

(1) Export.

150. (*a*) *Cocoa.*—During the year rehabilitation work on this crop proceeded satisfactorily, though towards the latter half of the year, rehabilitation consisted mainly of replanting, either with clonal cocoa supplies, or with seedling cocoa.

151. Cocoa was hit during the year by heavy infestations of rats which destroyed an estimated 20%—25% of the crop, and by beetles and thrips which resulted in the complete dying back of large numbers of older cocoa trees, and made it uneconomical to try to bring back most of the surviving old trees.

152. Low price, 30 c.—36 c. per lb. throughout the year also acted as a set-back to this crop.

153. Supplies for clonal cocoa damaged by "Janet" were distributed in the latter half of the year and inspection of sites for planting of clones for 1957 was carried out during the last quarter.

154. (*b*) *Nutmegs.*—High prices throughout the year, and the payment of a large bonus by the Association, along with the heavy-bearing of surviving trees, acted as stimulus to the replanting of this crop. A large number of trees, taken for dead after "Janet" recovered during the year and yielded a fairly good crop. This coupled with the fact that a fairly good number of young trees came into bearing for the first time this year, resulted in a much better crop than was estimated.

155. (*c*) *Bananas.*—Extensive cultivation of this crop throughout this year was noted. Nearly all land on which nutmeg was destroyed or badly damaged, or on which cocoa was badly damaged, and several acres of previously empty lands were put under banana cultivation. Over 102,000 plants imported from other islands were distributed in this district during the year. 9 nurseries accommodating over 5,000 plants were established in this district.

156. Heavy leaf-spot infestation was observed only in the Belvedere and Dividhll Estate areas, while severe Panana outbreak in Gros Michael occurred on Black Bay Estate. A few cases of Panama disease in Lacatan bananas were noted. Nearly all bananas in this district are being grown as Nurse crop for cocoa or nutmeg.

157. (*d*) *Limes.*—This crop did fairly well throughout the year, and a fairly good yield was obtained.

158. (*e*) *Coconuts.*—Very little replanting of this crop was carried out, and trees in this district, which survived "Janet" yielded fairly poorly. 1,250 dwarf coconut plants were distributed in this area during the latter half of this year. Coconuts were scarce throughout the year.

(2) Food Crops.

159. (*a*) *Yams.*—The yield early in the year was fairly poor as a result of damage to plots by "Janet", and planting materials were scarce. Plants were imported from other islands and over 1,650 lbs. were sold in this district. Guinea, Lisbon and Moonshine yams were in fair supply towards the end of the year.

160. (*b*) *Sweet Potatoes.*—This crop was in fair supply throughout the year, although heavy damage done by rats which resulted in the loss of an estimated 25—30% of the crop. Price was 6 c.—7 c. per lb.

161. (*c*) *Corn.*—Rats caused the destruction of the greater part of the first crop of corn grown this year, and as there was a shortage of corn plants because of "Janet" this crop was somewhat scarce. A fair second crop was obtained, and no shortage of plants should occur in 1957 spring planting.

162. (*d*) *Pigeon Peas.*—Plants were scarce during the planting season but the Department of Agriculture supplied a fair amount from plants imported from the other islands. Large planting of this crop was carried out, since it was planted even on large estates to provide quick shade for cocoa fields. Good supplies of this crop was noticed towards the end of the year.

163. (*e*) *Pulse Crops.*—such as black-eye beans, cow-peas, etc., were in poor supply throughout the year.

(3) Other Crops.

164. (*a*) *Citrus.*—Was in fair supply, and trees were in good condition. There was a great demand for budded plants and over 750 plants were sold for planting in this district during the year.

165. (*b*) *Breadfruit.*—was scarce, crop being only fair.

166. (*c*) Mangoes, Golden-apples, Sapodillas and other fruits were fairly scarce throughout this year.

(c) Extension Work Done.

167. (i) *Soil Conservation.*—A great deal of Soil Conservation work was carried out during the year. In the first five months of the year, before the start of the Soil Conservation Grant Scheme, over 28,500 feet of drains and barriers were established. During June and July very little was done as the staff was then occupied with the Marigot water-shed area which later had to be abandoned due to lack of co-operation among farmers.

168. In the latter half of the year 48 3/C applications covering 1,952 acres and totalling 167,900 ft. Storm head drains, 128,382 ft. Vegetative barriers, 39,685 ft. Gully control and protection and involving $3,468.58 were sent in.

169. (ii) *Rehabilitation.*—Nearly all participants of the Scheme "B" Rehabilitation Loan Scheme were visited during the year and advice given on the rehabilitation of their crops, and holdings. In addition, short term loan applications were sent in for 40 persons, of this amount 23 were approved up to the end of the year. This involves 139 acres made up as follows :—61½ acres of bananas in pure stand as nurse for orchard crops, 3½ acres mixed food crops as nurse for orchard crops and 74 acres intercultivated with established orchard crops.

In addition $11,775 was granted for approved items, such as Land Rovers.

(d) Advisory work and Visits.

170. (*i*) Visits were paid to a very large number of peasant holdings and to nearly all estates in this district, during the year. Advice was given on a wide range of subjects varying from banana cultivation to control of thrips by spraying.

171. More farmers sought advice on all the different aspects of banana cultivation, than on any other one, subject, and more farmers sought the advice of the Extension Staff during this year, than in any previous year.

172. (*ii*) *Co-operatives.*—During the latter half of the year a Peasant Farmers Club was started in Concord. The members of this Club aided each other in their field work through an organised Working Group. The Club also sponsored a number of demonstrations and field-days, which were very well attended.

173. (*iii*) *General.*—During the year seventeen demonstrations on the different stages of banana cultivation were held within this district. Demonstrations dealt with preparation of land, planting, pruning, fertilizing, selective and circle weeding, kotching and harvesting and handling.

174. Two field days were held in the Concord area. Three demonstrations were given to the Junior Staff during the year, one dealt with the erection of a good wire fence the second with laying down vertical intervals and the third with harvesting and handling of bananas.

(e) Pests and Diseases.

175. During the year food-crops were badly affected by heavy infestation of rats. Cocoa was also affected by this pest and also by beetles and thrips . Palmiste Estate was the only estate in this district which did not show a high infestation of thrips. The rat campaign, launched towards the end of the year gave some relief from rats, and spraying done by the Plant Protection Division helped keep down thrips and beetles towards the end of the year.

176. Panama disease in bananas was seen to a large extent on only one estate in this district. Leaf-spot infestation was not severe. Banana weevil borers showed to a fair extent on peasants holding especially in the earlier months of the year.

Report on Carriacou Extension Service.

(By Arthur Branch, Senior Agricultural Instructor.)

1. Weather Conditions.

177. It was a wet dry season, and showers were widely distributed from March to December. The rains of the wet season starting in June continued to the end of the year with precipitation in November the highest and in February the lowest. In 1955 rainfall recorded for seventy-seven days and in 1956 rainfall recorded for seventy-eight days. In 1955 there was no rain in March and April while in 1956 the lowest rainfall 1.72 recorded in February.

173. Rainfall recorded on Dumfries Estate :—

	1955	1956
January	2.01	3.75 inches.
February	1.46	1.72 „
March	—	2.69 „
April	—	4.00 „
May	2.20	2.09 „
June	4.85	5.10 „
July	5.60	7.22 „
August	3.14	5.42 „
September	7.34*	4.09 „
October	6.90	4.41 „
November	14 39	8.42 „
December	3.22	2.55 „
*Hurricane "Janet" Total ..	51.11	51.46

II. Soil Conservation.

179. Farmers are becoming more conscious that the soil is their only asset, and therefore they must pay a little more interest to soil conservation measures. During the year under review a team of workers were employed to plant grass barriers, pack stones on the contour and open storm drains on farmers' holdings, the workers were paid from Colonial Development and Welfare Grants for the development of Carriacou. With the Agricultural Rehabilitation Loans Scheme coming into operation an area committee was set up in Carriacou, and under the scheme farmers submitting applications will be granted six ($6.00) dollars per acre for soil conservation work.

180. Soil erosion is the first serious problem that faces the extension worker, and Government has been taking all the necessary measures to minimize soil erosion, but the response from the farmer who depends on the soil for livelihood should be greater.

181. The following figures show the work done for the year under review :—

Area 1.	No. of lines.	No. of feet down.	Actual work done.	Area Affected.
No. of holdings				
Grass barriers ..	—	14,038	12,472	18 Acres.
Stone barriers ..	—	1,044	1,044	
Area 2 *and* 3.				
No. of holdings 33				
Grass barriers ..	—	8,871	8,871	
Storm drains ..	—	6,905	6,905	50 Acres.
Gully control ..	—	500	500	

III. Agriculture on the Island.

182. *Permanent Crops* :—(*a*) Limes are being grown for the past thirty years, and the old trees that were knocked about by two hurricanes are reviving, and production was fair. The two lime factories are undergoing repairs and a general overhauling for new installations, therefore the crop was shipped to Grenada Lime Factory which entailed additional expenses on the farmers. This crop could be grown successfully on the island, and more of it can be planted on the hillside to lessen the cultivation of annual crops and soil erosion. Farmers have prepared plots for rehabilitating their fields in 1957-58 with plants from Grenada.

183. (*b*) More coconuts are required on the coastal lands where it can be grown extensively to increase production to make the island self-sufficing. Plants were distributed to cover approximately ten acres, and it is hoped that more plants will be distributed in 1957.

184. (*c*) Perennial Cotton needs replanting, and regular manuring. The stools are old, and the roots are battered with the hoe and exhausted, therefore under such conditions it is impossible for vegetation to be produced for bearing bolls, and consequently the crop is dwindling. By a continuous replanting programme for five years, and with the application of fertilisers production could be increased within four years. Farmers are not interested in harvesting their cotton due to the low yields and uneconomical prices. The overall average for 1956 crop from approximately fifteen hundred acres was two hundred and forty two (242) pounds seed cotton per acre bringing a gross income of $19.36. The following figures show the crop, ginning percentage and number of producers for a five year period :—

	1952	1953	1954	1955	1956
Seed cotton ..	366,390	823,225	561,944	523,631	362,694
Lint cotton ..	152,830	204,910	136,710	126,480	90,210
Bales shipped ..	493	661	441	408	291
Seed (tons) ..	208	273	183.72	174.50	116.60
Ginning % ..	24%	24.8%	24.5%	24.1%	24.8%
No of producers	1,256	1,261	1,241	1,242	1,262

185. *Food Crops.*—(*d*) The production of corn has declined considerably. There are three factors which can increase production (1) ploughing (2) the application of fertilizers, (3) selection of planting material.

186. (*e*) Groundnuts are being planted more extensively by removing cotton. The soil is more eroded in the areas producing groundnuts; this is encouraged by the shallow forking to harvest the crop. Some efforts are being made to accelerate soil conservation practices.

187. (*f*) The production of yams are becoming popular, and yields have been increasing, and more farmers have grown this crop for the first year.

188. (*g*) The production of cassava has gone out, and there is very little left for big scale planting.

198. (*h*) The pigeon peas crop was reduced by the attack of parasol ants eating the blossoms.

190. (*i*) The bonavist is a good food, but it has very worthless habits by covering and smothering other crops making them unproductive. After the hurricane "Janet" it covered vast areas at Harvey Vale and Belmont.

Livestock.

191. (*j*) There were no reportable diseases, and the island continued to be free from diseases and pests.

192. (*k*) The Veterinary Officer visited Carriacou and Petit Martinique, and he checked on the health of peasants' animals and those on Limlair Agricultural Station.

Castration	Three	(3) boars were castrated.
	Ten	(10) young boars were castrated.
Deworming :	Seven	(7) pigs,
	Four	(4) calves,
	Two	(2) goats.

193. (*l*) Export of Livestock and poultry. Cattle, Sheep, Goats, and Poultry were exported to the French Island of Martinique, and only poultry to Trinidad. The following figures are showing the trade for the year under review :—

Cattle	331	heads	valued	approximately	at	$ 100.00	per head	$ 33,100.00
Sheep	291	„	„	„	„	5.00	„	1,455.00
Goats	208	„	„	„	„	3.00	„	642.00
Fowls	4,268	„	„	„	„	1.00	„	4,268.00
								$ 39,447.00

194. (*m*) The Nelthrop sires are standing up well to conditions, and their progenies are more seen in the areas nearer to the Agricultural Station, as there is not a wide enough station of bulls to meet the farmers requirements. The farmers are very pleased with this breed for its early maturing habits on any type of forage.

195. *Pastures and Ponds.*—Fencing of pastures, cleaning drains, and one (1) pond continued during the year. In a small enclosure in the Brunswick pasture a plot was planted with Para grass, from this plot planting material will be used to extend the area and improve the pasture. Pangola and Coastal Bermuda grasses were introduced and a small plot is planted in an enclosure in the Limlair pasture. Four hundred and seventy-six heads of stock were enclosed into the pasture and revenue collected for the year $229.50.

196. *Planting material distribution.*—The distribution of planting material is an incentive to rehabilitation and development of an agricultural community. Farmers are becoming more confident that their holdings would be rehabilitated, and recently there were more peasants going back to the land. The farmer is definitely relying on the department for planting material, and if he fails in his rehabilitation programme he must not be blamed.

Plants distributed :—

21,000 bluggoes and fig plants.
2,000 coconut plants,
125 citrus plants,
90 bags of sweet potato slips.

197. *Forest Reserve* :—Messrs. Ross and Fraser visited the forest and recommended the sale of the trees blown down and those with the crown blown off. Young mahogany saplings are plentiful, and in some areas they are too thick. Sales—

Mahogany	74½ feet —	$186.75
Saaman	16½ feet —	8.30

198. *School Gardens.*—There was no active school garden, but out of the six schools, four schools were ready to have their areas prepared for gardening.

199. *Land Settlement* :—Eleven (11) Indentures were issued to allottees who completed payment for their lots on the Limlair Land Settlement. A sum of $23.33 was collected as annuity payments.

iv. General.

200. *Agricultural Rehabilitation Area Committee.*—The first meeting was held on the 3rd September, and Mr. J. Wright, Chairman of C.A.R.C. outlined the functions of C.A.R.C. The Area Committee held meetings at Harvey Vale, Six Roads, Mt. Pleasant, and Dover, and Petit Martinique informing the farming community of the facilities which loans, title deeds and soil conservation grant could be obtained. Under the scheme twenty-five (25) tons of fertilizers are available for sale. Many farmers received long and short term loans during the year under review, and the area committee recommended twenty-three (23) applications for long term loans, and forty-four (44) applications for short term loans to C.A.R.C.

v. Other Activities.

201. *Farmer's Club.*—A farmer's club was organised at Harvey Vale to cover the southern districts. Farmers from the area visited Limlair Agricultural Station to familiarize themselves with the system of agriculture they should practice.

202. *Rat Control Campaign.*—A team of workers were engaged setting bait throughout the island. The first baiting was not effective, but when a fresh lot was used dead rats increased, and there was evidence of the rat population decreasing.

vi. Miscellaneous.

203. *Staff notes.*—Mr. D. R. D. Wiles, Senior Agricultural Assistant went on holiday and Mr. A. C. Branch, Agricultural Assistant was appointed to act Senior Agricultural Assistant, Carriacou.

204. Mr. Clarence Phillip,s ecnd year student of the I.C.T.A. acted Senior Agricultural Instructor for three months.

205. The Island was divided into Agricultural areas, and Mr. R. F. Edwards, Senior Agricultural Instructor was posted in the northern district, and-in-charge of Limlair Agricultural Station.

206. Mr. C. R. Dominique was posted in the southern district.

207. Land Settlement Rangers :—

Augustine Sydney,
Jonathan Augustine,
John Shade.

208. Mr. John Shade retired on the 31st August, and Mr. Tempest Paterson was appointed on the 12th November, 1956.

LIMLAIR AGRICULTURAL STATION.

(By R. F. Edwards, Senior Agricultural Instructor).

209. The year 1956 has been a progressive period. Consolidated efforts were made to cultivate fields as favourable weather conditions prevailed and satisfactory results were obtained.

210. A great emphasis was laid on the establishing of Gliricidia cuttings and young Causarina plants as a means of sheltering certain areas from the terrible effects of the prevailing winds. It is hoped that within the near furture better wind brake will be planted which will assist in the growing of a wider variety of crops other than food.

Crops.

211. *Food Crops.*—Food crops such as White Lisbon, Moonshine and Sweet Yams, Sweet Potatoes, Corn, Pigeon and Black-Eye Peas and many others were grown. 6,482 lbs. of Sweet Potatoes were reaped.

212. Despite the attack by rats, the yield from Corn was excellent. Approximately 3,679 lbs. Corn on the cob were harvested from an area of about 1¼ acres.

213. Bitter cassava yieled 1,466 lbs. Yields from Pigeon Peas and Yams have not as yet been obtained but they are expected to do very well.

Vegetable Garden.

214. The reaping of tomatoes which was planted in August was uncompleted at the close of the year. 259¼ lbs, however, is already sold from this plot.

Livestock.

215. *Cattle.*—Stock owners are gradually becoming conscious of the importance of improving their breed of cows as can be traced from the records. The two service bulls namely :—Gresham and Charlie No. 2 rendered services to one hundred and one (101) cows. Gresham did sixty-nine (69) services while Charlie made thirty two (32). Charlie was sent to this station in May.

216. Another calf was born to one of the Nelthroppe cows in August. He has a fine appearance. Those born between May and June of 1954 are progressing steadily and will soon be fit for use.

217. The stock at the end of the year comprised 3 cows, (2 Nelthrope, 1 Native) 2 bulls (Nelthrope) and 4 bull calves (3 Nelthrope, 1 Native).

218. *Poultry.*—Culling of the old flock of birds was effected and replacement was made with two batches of young chicks from Grenada. Seventy three birds weighing 221½ lbs. were sold at 50 cents per lb. The station was unable to cope with the demand for cockrels and young chicks.

219. The stock at the end of the year comprised 26 poultry (7 hens, 5 cooks, 14 pullets).

220. *Eggs.*—The price of poultry eggs was increased in February from 6-8 cents yet sales were unaffected. 1,566 poultry eggs and 66 turkey eggs were collected. The sales were—1,561 poultry eggs. Of this amount 195 were sold at 6 cents each 1341 were sold at 8 cents each and the remaining 25 were sold for hatching purposes at 10 cents each. 44 turkey eggs were sold, 15 at 12 cents each, 5 at 6 cents each and 24 at 4 cents each. The reduced prices were due to infertility.

221. *Sheep.*—The African Woolless Ram (Fred) died in April. On 4th June, a surplus amount of 20 sheep were disposed of, by Auction Sale. The general appearance of the remainder of the flock at present is good.

222. Three services were obtained from sheep.

223. The stock at the end of the year comprised 7 (3 males, 3 females, 1 female lamb.)

223A. *Goat.*—South Moore Keith, (the Alpine Buck) passed away on 30th August. He did merely one (1) service for the year.

224. *Pig.*—The large Black Boar (Harbo Clipper) did fourteen (14) services and died in November, 10 days after he was castrated. His successor was nine (9) months old on 15th December.

225. *Donkey.*—Two (2) services were rendered by the Kentucky Jack (Diamond). He also died in November. The cause of death is believed to be "Tetanus".

226. *Turkeys.*—Four (4) turkeys were sold and brought in a revenue of twenty-nine dollars and twenty-six cents ($29.26). The stock at the end of the year comprised 6 (3 hens, 3 chicks).

Fodder Grasses.

227. Fodder grasses especially Elephant, responded well to the application of the chemical fertilizer (Sulphate of Amonia) used. Other grasses such as Guatamala, Antigua Hay and Barbados Sour are also in existence. The latter though not heavily grazed on, stood up well. An ample supply of fodder was maintained to meet the needs of the station.

A small quantity of Coastal Bermuda and Pangola grasses were introduced to the station in August. They were planted in furrows 2 feet x 2 feet and 3 feet x 3 feet respectively. Each plot was given the same treatment. Both lots are doing well but the coverage of the Pangola excels that of the Coastal Bermuda.

Forestry.

228. No further development has been carried out in this connection. A few White Cedar saplings if available from Grenada would be welcomed.

Trials and Experiments.

229. The cotton trials which began in 1952 with the view of planting a small portion of cotton year after year for 5 years, were continued. The object of the trial had been to ascertain the proper period in which to replant cotton under conditions here. This year's reapings amounted to 442 lbs. seed cotton from an area of approximately 1¼ acres. Revenue collected was Thirty Five Dollars and thirty-six cents ($35.36). Because the previous records were lost by the hurricane which destroyed the purpose of the trials, costings were not kept.

230. The Permanent Manurial Plot also proved a failure with the lost of the plan of the lay-out and all records through "Janet", therefore, it was not carried on this year.

Plant Distribution.

231. Every peasant had the facility to purchase planting material from this station. 1657 lbs, White Lisbon, Moonshine and Sweet Yams; 1,780 lbs, corn on the cob, 569 lbs. corn seeds; 173 lbs. Pigeon peas and 58½ lbs. Peanuts were sold to 246 peasants. Potato cuttings and Bluggoe plants were distributed freely.

Rainfall.

232. A good rainfall was obtained up to the close of the period, and returns showed 37.35 inches of rain fell.

Labour.

233. Four thousand four hundred and seventy-two dollars and eighty-eight cents ($4,472.88) were spent on labour for the period. This provided for 1,172½ men days at $1.44 per day, for 1,139½ women days at $1.20 per day and also one thousand four hundred and seventeen dollars and eight cents ($1,417.08) for the watchman, Assistant Stockman and Poultry Attendant. (Watchman $20.16 per

fortnight increased to $23.52 from 29th January. Assistant Stockman $18.00 per fortnight and Poultry Attendant $16.80 per fortnight). A fair sum of the above mentioned figure ($4,472.88) was also spent on fencing to keep off strayed stocks from the neighbourhood. The maintenance of fencing is recurrent and proved to be very costly.

234. The purchase of materials and equipments amounted to one hundred and twenty-two dollars and ninety-seven cents ($122.97).

Buildings.

235. Buildings on the station which were devastated by the hurricane have not yet been replaced. In view of this circumstance, the Officer in Charge is forced to reside outside of the station. This state of affairs helps in some measure to hinder the smooth running of the station as the proper form of supervision cannot be maintained.

236. Other urgent necessities are installment of a proper office and store room. Then, there is the question of Pens for Stocks which are sadly required to provide the necessary shelter from weather conditions. Action in these directions could not be over emphasized.

Visitors.

237. Numerous visitors were welcomed to the station. It is particularly gratifying to find among the visitors a number of interested peasants who seem to have been impressed with the system of agriculture practiced.

238. Other visitors included Honourable Bernard Gibbs, Esquire, Assistant Administrator, Grenada; H. H. Williams, Esquire, District Officer Carriacou; Honourable F. B. Paterson, James Wright, Esquire, C.B.E., Agricultural Rehabilitation Commissioner; Miss Irene Moore, Secretary C.A.R.C; Charles Alleyne, Esquire, Accountant C.A.R.C.; Miss Mildred Johnson, Caribbean Commission; John Bywater, Esquire, V. O., Barbados; Austin Cudjoe, Esquire, and S. C. Jacobs, Esquire, J.P.

239. A party of some fifty (50) pupils and staff under their Head Teacher—Mr. Nathaniel Bascombe—of the Mt. Pleasant Government School made an educational tour of the station. A full advantage of the opportunity was taken to outline the purpose of the station and to impart some of the fundamental principles of agriculture.

240. Our appreciation is extended to Mr. Bascombe for organizing such a visit.

Revenue.

241. Realization from the Sale of Produce, Service Fees, Sale of eggs and pound Fees for the year can be considered good. A sum of one thousand three hundred and seventeen dollars and twenty six cents ($1,317.26) was paid into the Revenue Office at Hillsborough, made up as follows :—

Sale of produce		$ 1,047.60
„ Eggs	..	124.46
Service Fees	..	134.40
Pound fees	..	10.80
Total	..	$ 1,317.26

Inventory.

242. At the end of the year, the following articles were in store :—

1,054 lbs. Corn seeds, (358 lbs stored on the station ; 696 lbs. stored at the Food Storage Centre, Hillsborough, on instructions from Mr. A. C. Branch, Senior Agricultural Assistant, Carriacou). 71 lbs Peanuts, 22½ lbs Shallots, 3 Poultry Eggs, 4 Turkey Eggs.

Stock Feed.

243. 80 lbs. A.P.P. Feed, 30 lbs Purina Feed (Growena), 134 lbs. Pig Balancer, 234 lbs. crushed Corn, 122½ lbs Oats and 34½ lbs Fish Meal.

Tools and Equipments.

244. Included are good and bad tools. (The bad ones are to be written off).

7 forks, 4 grubbing hoes, 14 hoes, 3 digging spades, 2 rakes, 9 spades, 4 scrubbing brooms, 1 Howe scale and weight, 1 counter scale and weights, 2 watering cans, 1 moonscale, 2 curricombs, 1 hammer, 1 clipping machine, 1 gun, 1 spraying machine, 2 clocks, 2 saws, 1 rain guage, 1x50ft. tape, 3 flashlights, 1 spirit level, 1 wrench, 3 clamps, 1 clipper, 1 balling gun, 1 iron chest, 1 lantern, 1 chaff cutter, 6 buckets, 1 grooming brush, 1 hand brush, 1 office table, 1 office chair, 1 egg scale, 4 baskets, 4 spraying hoes, 1 land mower and Plough, 2 wheel barrows, 2 type-writers.

Statement of Revenue Collected for the year 1956.

Date.		Amount. $ c.	Treasury. Receipt No.	Remarks.	
January	— 13	47.88	133120		
,,	— 19	41.60	132716		
,,	— 23	30.36	132744		
,,	— 24	2.12	132758		
,,	— 30	36.08	142516		
,,	— 31	5.40	142530	January,	$ 163.44
February	— 3	25.44	142728		
,,	— 7	15.32	142778		
,,	— 8	19.44	142791		
,,	— 10	22.12	132641		
,,	— 13	9.60	132667		
,,	— 20	21.12	142932		
,,	— 25	24.12	142984	February	$ 137.16
March	— 13	53.08	155709		
,,	— 20	5.44	155760		
,,	— 26	11.84	155300	March	$ 70.36
April	— 9	19.98	156274		
,,	— 17	18.06	156339		
,,	—	10.44	23	April	38.48
May	— 1	18.48	169218		
,,	— 5	52.04	169250		
,,	— 7	25.50	169271		
,,	— 12	42.86	169516		
,,	— 22	26.84	170111		
May	.. 30	13.30	169718	May	$ 179.02
June	— 4	190.28	169847		
,,	— 11	23.24	169099	June	$213.52
July	— 11	44.00	184496		
,,	— 11	35.36	184496		
,,	— 23	25.10	184809	July	$104.46.
August	.. 1	42.72	197606		
,,	— 15	9.32	197819		
,,	— 21	10.91	197885		
,,	— 27	19.66	197933	August	82.61
September	— 10	11.96	198387	September	11.96
October	— 1	19.70	198141		
,,	— 25	18.41	213760	October	$ 38.11
November	— 19	54.96	214197		
,,	— 28	40.78	214385	November.	95.74
December	— 3	27.36	213963		
,,	— 7	16.66	213997		
,,	— 10	12.98	227528		
,,	— 31	115.40	238511	December	$ 172.40
		$ 1,317.26			

Veterinary Services.

(Report by J. Cocozza, M.R.C.V.S. Veterinary Officer).

245. Apart from Rabies Grenada remains relatively free from disease. However, lack of pasturage, the high cost of imported cattle feeds and the scarcity of home grown cattle feeds are responsible for any falling off in animal health and livestock economics. The vast majority of livestock is in the hands of small peasant proprietors who do not supplement the available grass ration on which the cattle are restricted. Malnutrition, therefore continues to be a major problem, especially in cows, which, though not highly yielding in the ordinary sense, are being milked to capacity without a return to them in terms of production feeding.

246. Of distinct benefit to livestock owners would be cheaper prices and more plentiful supply of corn and coconut meal. Present limitations for their use in cattle feed is occasioned by competitive industrial and human consumption.

247. Greater use has been made of the increased breeding stock, maintained at Westerhall and on out-stations. The artificial insemination report shows a steady demand for the services of good Jersey and Red Poll Bulls. Young pigs at Westerhall continue to be in constant demand and it is obvious that there has been a revival of Livestock appreciation from which the home market in livestock has benefited.

248. Notably, conditions for which the Veterinary Officer was called to attend, in order of their frequency have been :—

Parturition Difficulties.—These occurred mainly in Cows and Sows and appear to be due to uterine inertia and on occasion to failure of the cervix to dilate. Nutritional factors as well as physiological are involved. Only in a few cases (9 cases) was such dystokia due to pelvic abnormality.

249. *Milk Fever.*—This condition almost always followed such parturition difficulties and sometimes formed a clinical condition on its own. Treatment was always effective when the case was observed, though with an expanding demand for more and more milk from individual producers, this condition will become even more frequent.

250. *Castrations.*—The policy of castration of all undesirable male beasts has become throughout the year, very popular with all producers involving over 200 cattle over two years old and most of the male calves and young pigs which are not reared for service.

251. *Piglet Anaemia, Agalactia, Oedema of the Bowel, Post Parturient Fever.*—These conditions occurring in pigs have been observed in varying districts, some reflecting on the conditions of pig husbandry and some being accidental. Oedema of the Bowel was observed for the first time in Grenada occuring solely as a result of a sudden change in feeding from one proprietary pig feed to another, a new protein being presented to the pig resulting in protein poisoning from the unfamiliar protein.

252. *Poisoning.*—Many cases of poisoning have been observed and treated. Most common poison responsible has been Phosporous, used in the destruction of rats. Accidental ingestion of Thallium Sulphate has been observed fairly frequently in dogs, though recovery in these cases is rare. Plant poisons deserve a better study than they do. Only one plant locally known as Bom-Vier has been identified with the assistance of the Imperial College of Tropical Medicine and this only after 8 cases had been treated expectantly with saline purgatives successfully.

253. *Parasitism.*—As a routine measure animals are treated with Nicotine and Copper Sulphate or Phenothiazine. It is, however very easy to attribute loss of condition generally to a parasite burden and it is very evident that factors other than parasites are involved, since often little improvement occurs following deworming. Experiments with Vit.B12 by injection has borne this out and net gain in livestock weight has resulted from increased capacity to convert and assimilate digestible material.

254. *Other Conditions.*—Calls for veterinary assistance in the main was for the treatment of wounds fractures, skin conditions, mastitis, abscesses etc., in livestock.

255. *Rabies.*—Legislation enabling a Rabies Control Programme to be carried out was passed on 20th March 1956 (S.R. & O. No. 13 of 1956) This provided for the compulsory vaccination of all dogs over the age of three months, the destruction of stray dogs and the power to enter upon land for the purpose of destroying mongoose.

256. During the period of the campaign 5,290 dogs were vaccinated using a vaccine supplied by the W.H.O. Dr. Malaga Alba, consultant to the WHO arrived in Grenada in March to initiate the campaign.

257. Poison used in the destruction of mongoose was Thallium Sulphate provided by WHO.

258. Rabies is unfortunately the only disease which brings some unwelcome notoriety to Grenada and notwithstanding the relative freedom from disease generally, a great effort is required in the fortcoming year to remove this one blot on an otherwise clean bill of health in order that future trade relations in livestock export may be improved.

259. During the course of the year six cases of rabies were observed in cattle and one in horse.

260. Diagosis of Mongoose rabies was accomplished in March during the visit of Dr. Malaga Alba.

261. The Veterinary Officer attended the British Caribbean Veterinary Association meeting in Jamaica from July 28th to August 8th. Subjects discussed included Animal Nutrition, Large Animal Practice and Parasite Control.

262. Legislation passed in 1956 :— 1. Rabies Control Order.
2. Repeal of Vesicular Exanthema Order.

Artificial Inseminations of Cattle.

263. These fall into three categories :

(*a*) *First Insemination.*—performed on cows for the first time since calving, or in the case of maiden heifers, the first time ever.

(*b*) *Repeat Services* to either cows or heifers which have been previously served by a bull.

(*c*) *Repeat Services* to cows or heifers returning to a previous insemination.

(*a*) 209 (*b*) 3 (*c*)43.

Distributions of Inseminations.

Parish.	No. of Inseminations
St. George ..	.. 142
St. David's ..	.. 67
St. Andrew's	.. 29
St. Patrick's	.. 16
St. John's ..	.. 1
	255

264. The relatively low number of Inseminations performed in 1956 especially in the Northern parishes are attributed to :—

(1) The operation of the Rabies Campaign (March to June) both the Veterinary Assistant and the operator at Tivoli were exclusively employed in the campaign. All A. I. work ceased during this period.

(2) Loss of the Inseminator at Tivoli to attend a two year course at Trinidad, occurring soon after the Rabies campaign ceased.

265. *Abnormalities.*—There are no abnormalities to report.

266. *Bulls.*—Red Poll Jersey and Grade Jersey are used.

Bulls.	Breed.	No. of Semen Collections.	1st. Insem.	Repeats
Victor Echo Chief ..	Jersey	31	48	7
Royal Miss Wonder	G/Jersey	9	20	3
Olgas Echo ..	G/Jersey	24	37	7
Verinas Melboy Victor	G/Jersey	34	55	19
Knepp Comrade ..	Red Poll	13	16	—
Darkies Schellham Victor	G/Jersey	20	33	10
		131	209	46

267. Repeat services are performed with the semen of any bull so that the figures above give no indication of any particular bulls fertility.

268. During the year, Olgas Echo and Royal Miss Wonder were sold by auction. The fee for insemination remains at $1.20 and covers both first and third repeat services.

269. *General.*—Communications still militate against the efficient conduct of the programme. It is hoped that with the advent of the new telephone system requests for calls will become more frequent and the inseminations performed while the cow is still in season. It is further hoped to inaugurate a series of propaganda campaigns to stimulate interest in the scheme when the conditions referred to above are fulfilled.

270. *Transport.*—It is found that the present low powered vehicle is unsuitable for the operations of the scheme. A small jeep would enable the cross country work to cows waiting for inseminations and it is hoped to have such a vehicle soon.

271. *Staff.*—In addition to the Veterinary Officer, the Veterinary Assistant has been responsible for the collection of semen, its handling and storage, and the training of two operators at Tivoli.

272. The Veterinary Assistant has in addition to these normal insemination duties been responsible for minor veterinary work which he has performed ably and efficiently.

Poultry.

(Summary by Ernest W. John, Assoc. O.A.C., Dip. Agric. England.)

273. There were two poultry attendants attached to the scheme.

274. During the year we had attacks of coccidiosis in the broodens at the Botanic Station and Westerhall. The death rate from the attacks was low.

275. At Westerhall only the chicks purchased from Canada through Messrs Jonas Browne & Hubbard had chicken pox. No loss was sustained from the infection.

275A. Mongooses and rats proved a menace. Mongooses entered the pens, ate the eggs and killed two hens in trap nests. The rats ate the eggs in the cooler, consequently it had to be taken down and made rat proof. Baits were set and satisfactory results were obtained.

276. The following table gives a summary of the flock transaction at Westerhall for the year under review :

	Roosters	Hens	Pullets.	Cockerels.	Chicks.	Total.
Balance on hand 1st January 1956	3	38	38	18	—	97
Increases by hatches ..	—	—	—	—	—	—
Increases by purchases ..	6	—	—	—	—	6
Increases by transfers ..	—	—	—	—	483	483
Increases by reclassification ..	19	20	221	127	—	387
	28	58	259	145	483	973
Decreases by death ..	2	8	16	2	22	50
Decreases by sales ..	3	29	39	115	2	188
Decreases by transfers ..	1	10	—	—	—	11
Decreases by reclassification ..	—	—	19	22	318	359
Total Decreases ..	6	47	74	139	342	608
Balance on hand 31st December 1956	22	11	185	6	141	365

277. 180 eggs were obtained from the Ontario Agricultural College as a gift to the Agricultural Department through the instrumentality of Mr. Ernest W. John.

278. 101 chicks ("Canadian Royals") were purchased from Canada through Messrs Jonas Browne & Hubbard, and 6 R.I.R. roosters from I.C.T.A.

Egg Production and Disposal.

279. The difference between production and disposal accounted for as follows :—

Production :

On hand 1st January, 1956	163
Amount layed	20,113
Total	21,176
Eggs Incubated	10,204
Eggs Bkn.	421

Disposals :

A. Inseminations	276
On hand 31st December, 1956 ..	328
Sales	9,947
Total	21,176

Eggs Incubated.

280. The results of the eggs incubated were as follows :—

Eggs Incubated from 14th January, 1956 to 8th December, 1956 :

Westerhall	10,204
O. A. C.	180
Total	10,384
Infertile eggs	2,112
Chicks hatched	5,473
Dead germs	2,701
Eggs broken	98
Total	10,384
Chicks hatched of total number Incubated	53%
Infertile eggs	20%
Dead germs	26%
Eggs broken	1%
	100%

281. Percentage of chicks hatched from total number of fertile eggs—66.2%.

282. The chicks hatched and placed in the brooder as well as the amount purchased accounted for as follows :—

Chicks in brooder :

Department	5,205
J. B. & H.	101
Total	5,306
Deaths	426
Sales	3,804

Transfers :

Westerhall	483
Tivoli	77
Carriacou	99
Balance at 31st December, 1956 ..	417
Total	5,306

283. The chicks produced and sold by the Department as well as the amount imported into the Colony from 1953 to 1956 were as follows :

	1. Departments production and Sales.				2. Importations.			
Year	Prod. (*a*)	Sales (*b*)	Agri. (*c*) Stns.	T/dad.	C/da.	U.S.A.	B/dos.	Total for (b) 1 (c)2
1953 ..	8,950	7,480	276	—	2,972	5	12	10,745
1954 ..	3,417	2,366	169	912	2,236	100	—	5,783
1955 ..	805	557	136	—	1,750	—	—	2,443
1956 ..	5,473	3,804	559	—	2,575	700	—	7,638

284. The importation figures were obtained from the Report on Livestock importation in to the Colony as compiled by Customs Department.

285. *Turkeys* :—100 Broad Brested Bronze hatching eggs were received as a gift from the Ontario Agricultural College of Cananda through Mr. Ernest W. John.

286. The result was as follows :—

Poults hatched ..	37
Infertile eggs ..	27
Dead germs	36
Total ..	100

287. Of the 37 poults hatched, 4 died in the incubator. We lost three in the brooder, they were drenched during the heavy rains in June. The remaining 30 were brought to the Westerhall Agricultural Station. 15 of them were toms and 15 pullets.

288. Six toms and six pullets were sold to interested turkey breeders. Six toms had defects which made them unsuitable for breeding purposes. They were sold as market birds.

289. Three toms and ten hens were kept as breeders at the Westerhall Agricultural Station.

290. The revenue collected under the scheme was as follows :—

Sale of culls	$ 171.00
Sale of cockerels	278.63
Sale of chicks	1,606.20
Sale of eggs	355.44
Sale of turkeys	303.50
Total	$ 2,714.77

Westerhall Agricultural Station.

Livestock.

(Report by Ernest W. John, A.O.A.C., Dip. Agric. England).

291. *Dairy Cattle.*—The following table shows the herd statistics of the dairy herd during 1956.

	Bulls.						Calves.		
	Jerseys.	Red Poll.	Nelth-ropp	Cows	Heifers	Stags.	M.	F.	Total.
On hand 1st January ..	6	1	—	11	6	—	5	3	32
Increases by birth ..	—	—	—	—	—	—	3	3	6
Increases by purchases ..	—	—	3	—	—	—	—		3
Increases by transfers ..	—	—	—	—	—	—	—		—
Increases by reclassification	—	—	—	1	—	4	—		5
Total ..	6	1	3	12	6	4	8	6	46
Decreases by death ..	—	—	—	—	—	—	—		—
Decreases by sale ..	4	—	—	5	5	—	—	1	15
Decreases by transfers ..	—	—	1	—	—	—	—		1
Decreases by reclassification	—	—	—	—	1	—	4	—	5
Total ..	4	—	2	5	6	—	4	1	21
Balance on hand 31st Dec.	2	1	2	7	—	4	4	5	25

292. Three Nelthropp bulls were purchased from Antigua. One was sent to Limlair, Carriacou.

293. The Station had been over populated with cattle and all undesirable animals were sold. The bulls sold were old and not producing good quality semen for Artificial Insemination.

294. The revenue realized from the sale was as follows :

Bulls	.. .. ..	$ 693.01
Cows	.. .. ..	857.00
Heifers	.. .. ..	517.00
Calf	.. .. ..	45.00
	Total	2,112.01

295. Milk production and distribution were as follows :

Year.	Total Production. Qrts.	Converted into butter Qrts.	Fed to Calves. Qrts.	Fed to Pigs. Qrts.	Sold. Qrts.	Fed to goats. Qrts.	Spilt. Qrts.
1952 ..	9,018.00	7,893.50	584.00	56.5	482.50	—	1.50
1953 ..	20,012.40	9,553.85	1,632.30	72.0	753.65	—	.60
1954 ..	13,287.35	4,958.95	7,041.75	58.0	1,110.40	68.0	50.25
1955 ..	6,882.50	2,735.70	2,716.35	26.1	1,358.25	24.2	21.90
1956 ..	5,187.10	3,506.00	1,082.40	17.70	577.40	1.60	2.00

296. Butter production and disposal were as follows :—

Year.	Production. lbs.	Sales lbs	Supplied to Hospital. lbs	Free Samples lbs.	Spoilt. lbs.	Balance on hand 31st Dec. lbs.
1952	B/F from					
	1951 — $9\frac{5}{8}$					
	1952 842					
	$851\frac{5}{8}$	$459\frac{1}{8}$	380	5	2	$4\frac{3}{4}$
1953	B/F from					
	1952 $4\frac{3}{4}$					
	1953— 1055					
	$1059\frac{3}{4}$	519	537	$1\frac{3}{4}$	—	2
1954						
	B/F from					
	1953— 2					
	1954— 383					
	385	$334\frac{1}{2}$	$46\frac{1}{2}$	—	2	2
1955	B/F from					
	1954— 2					
	1955— $208\frac{3}{4}$					
	$210\frac{3}{4}$	100	$104\frac{3}{4}$	—	—	6
1956	B/F from					
	1955— 6					
	1956— $200\frac{1}{2}$					
	$206\frac{1}{2}$	$85\frac{3}{4}$	192	$\frac{1}{2}$	7	$11\frac{1}{4}$

297. Revenue from sale of butter was $308.64.

298. Large Black pigs continued to be the only breed on the station. The pigs maintained good health throughout the year.

299. Lack of funds and the unavailability of suitable cheap feeds created many anxious moments. We were grateful to the Senior Sanitary Inspector for the 22 drums of damaged dried skim milk, flour and condensed milk unsuitable for human consumption, which he willingly permitted us to collect. Without such valuable help we would have been forced to dispose of the greater part of our pigs.

300. During the year two feeding trials were conducted. The results were encouraging and reports had been forwarded to the Superintendent of Agriculture.

301. One boar was sold to Mr. C. N. Reece of Grand Anse Estate and another was transferred to Hope Stud Centre. A male piglet was transferred to Limlair, Carriacou.

302. The following table shows the year's transaction :—

	Boars	Sows.	Gilts.	Barrows.	Piglets.	Total
Balance on hand 1st Jan. 1956	4	7	1	1	5	18
Increases by birth	—	—	—	—	113	113
Increases by purchases ..	—	—	—	—	—	—
Increases by transfers	2	—	—	—	—	2
Increases by reclassification ..	6	3	6	2	—	17
Total	12	10	7	3	119	150
Decreases by death ..	1	—	—	1	7	9
Decreases by sale	3	—	2	2	81	88
Decreases by transfers ..	3	—	—	—	1	4
Decreases by reclassification ..	2	—	1	—	14	17
Total decreases ..	9	—	3	3	103	118
Balance Dec. 1956.	3	10	4	—	15	32

303. The following table shows the number of litters with the average per litter, the death rate per litter, average number weaned per litter, the average weaning weight per litter and the highest individual weaning weight at eight weeks.

No. of litters	14
Average per litter	8
Deaths per litter	0.29
Average No. weaned per litter	7.81
Average weaning weight	36.65 lbs.
Highest individual weight at eight weeks ..	56.0 lbs.
Highest individual birth weight ..	5.0

304. The sow with a litter of 4 piglets was removed when the piglets were 28 days old, because it was uneconomical to have her nursing 4 piglets for a longer period. The piglets were put on a suitable mixed ration and they averaged 35.25 lbs. at 8 weeks. The highest individual weight was 42 lbs. The piglets were on creep feed mostly from 3 weeks to weaning age.

305. The revenue collected from pigs was as follows :

Piglets	$ 810.00
Boars	159.98
Gilts	61.00
Barrows	263.10
Total ..	1,294.08

Stud Centre.

306. The following table shows the number of services given by the different classes of Stud animals at Westerhall.

Year	Boars	Rams	Bucks.	Jack.	Total.
1951 ..	57	9	4	7	77
1952 ..	58	15	15	—	88
1953 ..	54	7	25	3	89
1954 ..	48	6	36	1	91
1955 ..	35	10	26	2	73
1956 ..	33	7	21	—	61

307. The Jack donkey was transferred to Mt. Horne on the 21st April, 1956.

308. *Pastures and Fodder grasses.*—The Guinea grass (Panicum Maximum) pastures were renovated.

309. About one quarter of an acre was planted in Guatamala grass (Tripsacum laxum). Other plots were supplied. Production had been satisfactory.

310. A small plot of sugar cane was planted and irrigated by the water which flowed from the piggery. Production had been highly satisfactory.

311. Pangola grass (Digitaria decubens) was planted in one of the pastures. Planting material was obtained from the Department of Agriculture, Jamaica, and from a small plot at Westerhall. The grass grew well and showed great promise as a grazing grass. Planting materials were given to Bailies Bacolet, Hope, True Blue, Grand Anse and Belle Isle Estate. These estates planted small plots with the planting material received. By this method we were able to note the suitability of the grass under varying degrees of rainfall and soil types.

312. A small plot of Coastal Bermuda (Cynodon dectylon) was established. The plants were obtained from the Department of Agriculture, Jamaica, in August. Its growth left much to be desired compared with Pangola grass (Digitaria decubens).

Staff.

313. The livestock activities on the Station were conducted by the Livestock Officer, assisted by Messrs. Clarence Wyse, Foreman, Urias Francis and Emmanuel Jacob. The Clerical work was done by Mrs. Ernest John.

Marketing Organisation.

(Report by J. W. Wilson, Marketing Officer).

314. *Food Crop Supplies.*—Supplies of local food crops continued very poor up to November of this year when yams, bananas, and some sweet potatoes begun to find their way to the Markets.

315. From January to October all available supplies of ground provisions and vegetables were obtained from St. Vincent mainly, and in smaller quantities from the other islands.

316. A considerable quantity of planting material—yams, sweet potato cuttings, corn, vegetable seeds etc., was imported and distributed; as a result the prospect for supplies from November onward was very good.

317. Locally available supplies were bought and sold at current market prices; there was no surplus, and consequently no need to resort to minimum guaranteed prices. Government Institutions and the public were supplied with available local items, supplemented largerly by importations.

318. Market prices of ground provisions and green vegetables have been very high throughout the year, but there is a tendency towards a gradual drop in prices as supplies increase in volume.

319. *Poultry Feed Supply* :—There was a steady demand for poultry feed throughout the year. Locally produced materials, principally corn and coconut meal were not available in sufficient quantities; these had to be imported and consequently an increased price of 1 cent per lb. was maintained throughout the year.

320. Poultry feed sold by Marketing Organization amounted to 112,400 lbs at 11 cents per lb.

321. *Reduced Activities* :—All activities of the Marketing Organizations—buying, storage, Processing and Sales was confined to St. George's during this year. The Grenville centre which is mainly used for the purchase and storage of surplus corn, peas, and root crops, received no supplies; the Carriacou Centre has also been inactive.

322. Indications are that food crop production will not only be back to normal in 1957 but with much of the areas denuded by Hurricane Janet, now put to food crop production, there will be an abundance of supplies for which markets will have to be found outside the Colony.

323. Purchases for the year were :

		Revenue.
Corn 119,870 lb. value	$ 10,645.00	Sales : $43,003.08
Stock feed materials 70,436 lbs value	5,643.58	
Planting materials Ground provisions and vegetables	18,696.33	
	34,984.91	

324. *Cotton.*—The Carriacou Cotton Crop amounting to 291 bales were received, stored in St. George's and shipped to Consigners in the United Kingdom by the end of September.

APPENDIX A.

Marketing Organization Report 1956.

325. Items of Stock carried over from 1955, damaged and unfit for use :

A.

	Quantity	Value
Coconut Meal	6,000 lbs.	$ 50.00
Wheat Shorts	3,200 „	288.00
Startena	500 „	325.00
Corn	500 „	45.00
Poultry Feed (A.P.P.) ..	800 „	80.00
		$ 788.00

B.

Opening stock 1st Jan., 1956	6,447.70	Sales ..	43,003.08
Damaged stock	788.00	Closing balances	3,898.30
Opening stock balances ..	5,659.70		
Purchases	34,984.91		
Balance (Gross Profit on Trading)	6,256.77		
	$ 46,901.38		$ 46,901.38

C.

Expenses :

Personal Emoluments	..	$ 3,888.00
Casual Labour ..	..	1,902.24
Upkeep and Management	..	24.65
General Stores ..	..	144.14
		$ 5,959.03

Land Settlement.

(Report by Mr. L. G. Cromwell).

326. *Staff.*—Mr. D. K. Samuels was in charge of the Land Settlement Division throughout the year.

327. Hitherto there were four Junior Agricultural Instructors engaged on Land Settlement work, but, during 1955 these were drafted to Agricultural extension work.

328. There were seven Land Settlement Rangers, four for Grenada and three for Carriacou. Four rangers retired in August 1956 and were replaced by younger men. At the end of the year the rangers were as follows :—

Mr C. Phillips, Land Settlement Ranger Grenada,
„ E. J. Peters „ „ „
„ E. Lessey „ „ „
„ C. Welsh „ „ „
„ C. Paterson „ „ Carriacou,
„ C. Romaine „ „ „
„ A. Sydney „ „ „

329. *Settlements.*—There are fourteen (14) settlements in Grenada occupying 1,880 acres.

330. These can be classified according to size as follows :

Settlements ranging in size between			290	and	300 acres —	3
„	„	„	160	„	170 „ —	1
„	„	„	100	„	130 „ —	4
„	„	„	60	„	90 „ —	4
„	„	„	30	„	50 „ —	2
						14

331. There are six (6) settlements in Carriacou occupying 2,309 acres. Each settlement is over 300 acres.

332. At. Mt. Moritz in Grenada 60 acres of land provide lots for farming for tenants who were displaced in establishing the Mt. Moritz Agricultural Station.

333. *Indentures.*—Indentures were prepared for 24 allottees on the following settlements, Limlair 2, Fraze 4, Mt. Cassell 8, Mt. Nesbit 3, St. Cloud 3, River Sallee4.

334. *Roads.*—The sum of $2,975.16 was spent on maintenance of Land Settlement roads.

335. *Post Hurricane Agricultural Rehabilitation.*—The main achievement during 1956 was the agricultural rehabilitation of lots following the destruction caused by Hurricane Janet on September 22nd 1955. The Central Agricultural Rehabilitation Committee approved loans for this purpose to 187 allottees totalling over $41,500 for the rehabilitation of some 350 acres of Land Settlements in Grenada, as shown in the following table :—

SETTLEMENT	No. of allottees granted loans	Acreage of lots for which loans were granted			Amount of loans approved	Amount of instalments paid to 31/12/56	Available balance as at 31/12/56
		Acres	roods	poles			
					$	$	$
River Sallee ...	82	118	2	24	10,992.28	8,760.29	2,231.99
St. Clouds ...	36	54	0	09	8,170.00	7,386.13	783.87
Mt. Nesbit ...	28	66	2	20	7,473.34	4,687.84	2,785.50
Plaisance ...	15	49	2	18	5,580.00	2,216.40	3,363.60
Mt. Cassell ...	15	32	0	04	4,730.72	2,183.69	2,547.03
Fraze ...	11	29	4	35	4,580.00	3,274.70	1,305.30
Total ...	187	350	0	30	41,526.34	28,509.05	13,017.29

Plant Disease and Pest Control.

(Report by D. K. Samuels, Plant Protection Officer).

336. The Plant Disease and Pest Control Scheme operated by the Department of Agriculture for the purpose of controlling the spread of Witches Broom disease and Love Vine was extended early in July through a grant from Agricultural Rehabilitation funds under a scheme for the control of Leaf Spot in bananas (Cercospora), Banana Root Borer, Frog-hopper of Sugar Cane, Thrips and Cocoa Beetles of cocoa, and diseases of other vegetable crops.

337. The first step towards the implementation of the control of leaf spot disease was by demonstrations of the Low Volume machines which were introduced, subsequent to the visit of Monsieur Guyot of Guadeloupe. It was recommended and accepted that Cooper Oxychloride be used with Orchard Oil as the carrier. The next step was the appointment of six Plant Disease Inspectors and one Senior Driver Mechanic. These Plant Disease Inspectors during the early stages concentrated on the registration of banana growers throughout the colony, and in classifying banana cultivation. The Senior Driver Mechanic was assigned to driving the lone land rover which was purchased for conveying spraying gangs and equipment to and from banana cultivation.

338. An additional six land rovers were purchased, drivers appointed, and were assigned to main distributing depots centrally located in each parish for easy access to high banana producing areas. These depots are used as storerooms for insecticides, fungicides and equipment for free distribution, office, and for storing other insecticides, fungicides, and simple spraying equipment for use by the farmers.

339. The total number of banana growers registered at the end of 1956 amounted to 894 with an estimated total area of 4,220 acres. These are classified as follows :—

3,266 acres Interplanted,
917 acres Purestand,
37 acres Nurseries.

The total number of holdings between $\frac{1}{4}$ acre and $9\frac{3}{4}$ acres —	791
The total number of holdings between 10 acres and $49\frac{3}{4}$ acres	75
The total number of holdings from 50 acres and above —	28
Total	894

Distributions.

St. George's :—

Number of holdings between $\frac{1}{4}$ acre and $9\frac{3}{4}$ acres	56
Number of holdings between 10 acres and $49\frac{3}{4}$ acres ..	7
Number of holdings 50 acres and above	1
Total	64

St. John's :—

Number of holdings between $\frac{1}{4}$ acre and $9\frac{3}{4}$ acres	154
Number of holdings between 10 acres and $49\frac{3}{4}$ acres ..	20
Number of holdings 50 acres and above	6
Total	180

St. Mark's :—

Number of holdings between $\frac{1}{4}$ acre and $9\frac{3}{4}$ acres	46
Number of holdings between 10 acres and $49\frac{3}{4}$ acres ..	10
Number of holdings 50 acres and above	9
Total	65

St. Patrick's :—

Number of holdings between $\frac{1}{4}$ acre and $9\frac{3}{4}$ acres	142
Number of holdings between 10 acres and $49\frac{3}{4}$ acres ..	9
Number of holdings 50 acres and above	3
Total	154

St. Andrew's North :—

Number of holdings between ¼ acre and 9¾ acres	116
Number of holdings between 10 acres and 49¾ acres ..	19
Number of holdings 50 acres and above	6
Total	141

St. Andrew's South :—

Number of holdings between ¼ acre and 9¾ acres	224
Number of holdings between 10 acres and 49¾ acres ..	9
Number of holdings 50 acres and above	2
Total	235

St. David's :—

Number of holdings between ¼ acre and 9¾ acres	53
Number of holdings between 10 acres and 49¾ acres ..	1
Number of holdings 50 acres and above	1
Total	55

Summary.

St. George's : Number of holdings	64
St. John's Number of holdings	180
St. Marks' Number of holdings	65
St. Patrick's Number of holdings	154
St. Andrew's North Number of holdings ..	141
St. Andrew's South, Number of holdings ..	235
St. David's, Number of holdings	55
	894

Total number of holdings sprayed for the year , 655.

Total acreage bananas sprayed, 2,895.

Mixture used—Copper Oxychloride with Orchard Oil.

Formula : ¾ lb. Copper Oxychloride to 2 gallons Orchard Oil.

Quantity of Orchard Oil used : 111 drums.

Quantity of Copper Oxychloride used : 27 drums.

Number of pumps used : 21.

Type of pumps : Motoblos and Kiekens Dekker.

Number of man-days worked : 1,049.

340. Due to the limited number of spraying machines available, pending receipt of additional spraying pumps ordered through the Crown Agents, and which did not arrive into the Colony until the month of December, spraying operations were at a severe handicap.

Expenditure.

	Approved Expenditure 1956	Actual Expenditure. 1956
A. Capital	$ 71,490	$ 50,636.11
B. Recurrent ..	4,710	3,686.28
(*b*) Other Charges ..	23,250	29,831.10
C. Contingencies ..	7,800	918.00
D. Rat Control ..	10,000	8,186.81
	117,250	93,258.30

341. *Cess.*—A sum of $9,663.77, representing part proceeds of the total cess collected, was lodged by the Grenada Banana Society into the Royal Bank of Canada at the end of the year, as a Suspense Account towards the scheme. This amount will be increased by further lodgements over the four year period.

342. *Sale of Insecticides etc.*—In each of the plant protection distribution depots stocks of insecticides and fungicides have been made available, for sale to the farmers at cost price, plus an additional 2½% to take care of waste, spoils etc. The actual sales at the end of the year amounted to $610.36 which has been lodged, to be credited back to the scheme for further purchases.

343. *Staff.*—The Staff of the Plant Disease and Pest Control Scheme is comprised of, (*a*) One Agricultural Assistant-Plant Protection, two Senior Plant Disease Field Supervisors (Banana and Cocoa), four Junior Plant Disease Inspectors (Cocoa), whose salaries are met from local funds; (b) Two Clerical Assistants seconded for the purpose of controlling vote and stock accounts, six Plant Disease Inspectors (Banana), six Land Rover Drivers, one Senior Mechanic. The salaries of the latter section are paid from the scheme.

344. Due to revision of salaries, a 20% increase has been paid to personnel employed under the scheme, met from E. 16—Item 44. Salaries Revision. The total sum expended for this purpose was $501.68.

345. *Infection :*—The density of infection (Cercospora) has been observed in high altitudes above the 1,000 feet contour in areas stretching from Birchgrove, North, to Hermitage-Peggyswhim on the Eastern side, and from Union-Nonpariel to Florida on the Western side of the island. These areas have been treated on a 21 day cycle with very favourable results. In the lower areas although not severe, the infection is scattered over a wide area, and its spread is being brought under control. It is further observed, that using 2 gallons of mixture per acre although somewhat uneconomical, constitutes a reasonable and adequate coverage for the control of the spread of the fungus.

346. On the whole, with the introduction of Low Volume Spraying of bananas, and the control of Banana Root Borer, the foilage and general health of the plants have been very satisfactory. It is to be regarded, that although the Leaf Spot disease is high in certain areas, the degree of infection compares favourably with other banana producing colonies, and it is presumed that in 1957 a more active and concentrated method of control will be instituted with the introduction of the additional spraying equipment.

Forestry Report.

(By J. S. Ross, Forest Supervisor).
Dip. Forestry (D. F. S. Forestry Commission U. K.)

347. *Forest Policy.*—The Forest Policy for Grenada is based on the proposals for a Forest Policy as outlined by Dr. J. S. Beard, in Development and Welfare Organisation Bulletin No. 11. These proposals have been adopted in principle for management purposes. They are as follows :—

348. *Forest Reservation*—(i) To effect the permanent preservation of a tree cover on such areas of land as are required for the prevention of erosion and flooding and the preservation of water supplies.
(ii) To effect the permanent reservation as forests of such areas of land as are unsuitable for agriculture, but could be utilized for the economic production of timber crops.

349. *Forest Management*—To manage the Forest Reserves in such a manner that, whilst still fulfilling their protective functions in the interest of agriculture, they may at the same time provide the maximum amount of forest produce on the basis of a sustained yield, and to effect such improvements of the growning stock in certain selected areas as will enable the colony in due course to become self-sufficient in forest produce.

350. *Utilisation.*—To effect the fullest possible utilisation of the products of the forest subject to the requirements of Forest Management and to encourage the most economic utilisation of both imported and local lumber.

351. *Research*—To carry out such experimental work as may be required to implement the Forest Policy.

352. *Education*—To educate and train the subordinate forest staff and to educate all classes of the community to an understanding of the benefits and value to the community of forests managed on a sound basis.

353. *Private Forestry*—To encourage and assist in every possible way the owners of private forests, woodlands and plantations to manage such crops in a sound manner.

354. *Land Usage.*—To co-operate with all other land interests in the achievement of optimum land allocation and usage, and in all projects of soil conservation and prevention of erosion.

355. *Forest Legislation* —The Crown Land Forest Produce Rules made by the Governor in Council under the Authority of Sections 18 and 32 of the Forest, Soil and Water Conservation Ordinance, No. 1 of 1949, was passed and came into effect from January 28th, 1956.

356. Proposals were submitted during the year by the Conservator of Forests for certain amendments to be made in the Forest, Soil and Water Conservation Ordinance. These are being considered by the proper authority.

357. *The Forest Estate.*—A total of sixty-five (65) acres of land in the Soulier/Mon Repos Catchment Area was acquired during the year from seventeen (17) small holders. Five (5) of the persons concerned refused to accept the valuation placed on their land and as a result the matter still remains to be finalized.

358. A lot of about eight (8) acres was also purchased in the immediate vicinity of the Les Avocat Catchment and Dam, bringing the total acquired for the year to about seventy-three (73) acres.

359. *Survey and Demarcation.*—All boundary lines surveyed in 1955 were cleared during the current year. No further survey work has been done as the Forest Surveyor was seconded to the Public Works Department after which he submitted his resignation. It has not been possible since to fill the post.

360. Survey work still to be done includes the completion of the Grand Etang Reserve and the survey and demarcation of the Mt. St. Catherine area in the North.

361. *Management and Working Plans.*—The working plan for Grenada is based mainly on the recommendations of the Gallant/Lamb report for post hurricane rehabilitation work. This plan allows for a planting programme of twenty-five (25) acres annually for a three-year period to be met by funds provided from both Hurricane Rehabilitation and Colonial Development and Welfare.

362. Twenty (20) acres are to be planted in the catchment areas with Hibiscus elatus (blue mahoe) and five (5) acres with Tectona grandis (teak) on the drier sites on the hills in and around St. George's

363. It also allows for the distribution of between 25,000—30,000 seedlings annually to farmers interested in establishing timber plots, windbreaks, etc.

364. In addition the plan allows for a Timber Development Scheme including the installation of a Timber Impregnation Plant and seasoning yards. It is proposed to purchase local lumber, cure, cut to standard sizes, dress, treat and re-sell same to the public. It is also proposed to treat imported lumber at a nominal charge for the public.

365. The plan also allows for the survey and demarcation of the Grand Etang Reserve and the Mt. St. Catherine area.

366. *Communications and Buildings.*—A considerable amount of work was done on the Grand Etang road by the Public Works Department during the year; it is now in good condition. Other roads leading to the forests are however, in a sadly neglected state.

367. Only some of the main inspection paths were cleared during the year as funds were not provided for this work. Cost in connection with this work was $3,540.00 for about twenty (20) miles of inspection path or $177.00 per mile.

368. The Forest Ranger's house at Grand Etang, and the Forest Guard's house at Ashenden were completed during the year. The cost for these two (2) buildings was $9,600.00.

369. A start was made with the erection of an office, timber impregnation plant and seasoning platforms at Queen's Park. Except for minor requirements these buildings were completed by the 31st December. Expenditure incurred, including the purchase of tank, etc., was $12,501.89 at the end of the year.

Protection.

370. (*a*) *Damage caused by man*—No forest offences were recorded during the year. This is believed to be due mainly to the fact that large quantities of timber were lying on the ground on private lands and river beds as a result of the hurricane in 1955.

371. (*b*) *Damage by other causes*—The effects of the hurricane in 1955 are still very apparent. Hundreds of trees that were thought to be recovering have since, either died, or are dying. Wood boring insect attack has been noted as very severe. The majority of standing and/or wind blown trees in a dead or dying condition have been attacked by borers. Every effort is being made to salvage as much timber as possible. Some damage was caused in the Nurseries by mice and birds eating the seed immediately after sowing. It is proposed to treat future seed with red-lead before sowing to prevent further damage.

372. (*c*) *Maintenance of Boundaries*—All known boundary lines were cleared during the year at a total cost of $3,540.90 for twenty (20) miles of line or a unit cost of $177.05 per mile.

373. These costs are regarded as very high but are due mainly to the fact that the lines were severly blocked as a result of the hurricane in 1955.

Silviculture.

374. (*a*) *Seed Collection*—Two (2) pounds of Blue Mahoe seed were collected locally; cost of collection was found to be very high, $1.50 per lb., so collection was abandoned.

375. Five (5) lbs., of *cassia siamea* was collected and shipped to Dominica. The following seeds were imported :—

18 lbs. Blue Mahoe from Jamaica,
25 lbs. Honduras Mahogany from Trinidad,
40 lbs. Teak from Trinidad,
2 lbs. Pinus Caribaea from British Honduras.

376. An unknown quantity of Pine and Mahoe seed was also brought in by the Conservator of Forests.

377. (*b*) *Nurseries.*—Three (3) Nurseries were established during the year totalling one (1) acre of land. These Nurseries are sited at St. Margaret in the Grand Etang, Les Avocats and Queen's Park. A total of 18½ lbs. Blue Mahoe, 28½ lbs. Teak, 2 lbs. Pine, 12 ozs. Poui, 4 lbs. Red Cedar was sown. Results with the Pine, Cedar and Poui were regarded as a failure and the areas were resown with Teak; a few pine and cedar seedlings were however raised. Results with the teak and mahoe have been excellent and a 10% sample check revealed that a total of 32,000 mahoe and 7,000 teak seedlings should be available for planting in 1957. Costs with the establishment and maintenance of these Nurseries have been very high. Expenditure at the end of the year was as follows :—

Clearing	$ 338.63
Preparing beds	961.64
Seed	39.11
Sowing	103.44
Weeding	85.28
Fertilizers	74.64
Miscellaneous	16.80
Total ..	1,619.54

Plantations.

(*i*) *Re-afforestation of Catchment Areas* (*Rubble and Land slips*) :

378. An estimated total of between twenty and twenty-five acres of rubble and landslips in the catchment areas were treated during the year. The treatment was aimed at stabilizing the top soil with a view to prevention of silting up of dams in the areas. The method adopted on the landslips was a series of grass and bamboo barriers interspaced at between twelve (12) to fifteen (15) feet intervals; in between these barriers were planted teak stump plants, these being the only seedling available at the time. On rubble areas plantings were made of gliricidia, blue mahoe and salix cuttings.

379. The bamboo and grass barriers have helped to some extent in the control of wash. The majority of the bamboo has since died, but the grass is now fairly well established. There have been some breaks in the barriers due to heavy rains, but such prolific natural regeneration of balsa and other species have taken place that the damage may be regarded as negligible. On the rubble areas and along the river banks the majority of the mahoe cuttings planted have proved to be a failure, but both the salix and gliricidia have done remarkably well. In general, this work may be classified as satisfactory as a first step in the stabilization and eventual re-afforestation of the area treated.

380. Cost in connection with this work has been very high. Total expenditure at the end of the year being $3,856.26.

381. (*ii*) *Teak—Mt. Moritz—2¼ acres.*—Cleaning and weeding was done in teak plots at Mt. Moritz. About one (1) acre of teak coppice was weeded and reduced to one shoot to each stump at a cost of $44.64. This teak, planted in 1948, was clearfelled last year as a result of damage caused by the hurricane in 1955. Growth has been good and a good crop is expected—average height of crop is between 10—15 feet.

382. Cleaning and some thinnings were done to other teak plots totalling 1¼ acres in the area at a cost of $61.76 per acre. Growth in these plots is fair. Total expenditure was $77.20 for the year.

383. (*iii*) *Teak and Mahoe—D'arbeau and River Road.*—These plots received their first cleaning this year since planting in 1952. The area of these plots is not known but costs were high. Growth has been variable and the planting can only be regarded as a partial success. The River Road teak plot is good, with an average height of 30 feet, but the D'arbeau plot is very poor in parts and on the whole the plot is stunted. The mahoe planted in a little valley has done reasonably well and average height is about 30-35 feet. Total cost for this work has been $206.20.

Natural Regeneration.

384. (*i*) *Mahogany and White Cedar—Richmond Hill/Botanic Gardens.*—Clearing of weed species was done through an estimated area of 4½ acres of mixed natural regeneration of mahognay and white cedar. On completion of cleaning, it was found that a very good mixed stand remained on the ground. Thinning is necessary, but as the majority of the saplings were thin and whippy, it was decided to postpone this operation for a year to allow them to develop. Costs for this work was high due to the heavy nature of the weed species. Total expenditure at the end of the year was $587.76 or a unit cost of $123.74 per acre.

385 .(*ii*) *Balsa, Les Advocats.*—A limited amount of thinning and cleaning was done through some of the natural balsa in this area. The area treated, and costs are not available.

Research and Investigation.

386 .Two sample plots of balsa were measured in the Les Avocats area. One plot is on the rubble and the other one a land slip. Girth and height measurements were taken of a total of 45 trees. It is proposed to check girth and height growth over a period of years.

Utilisation.

387. A total of 7,757.5 cubic feet of timber in log form and 1,556 cubic feet in pole form were cut and extracted from the Grand Etang for the year, as compared with a grand total of 15,614 cubic feet in 1955.

388. The following is a statement for the years 1955 and 1956 :—

Product.	1956	1955
Timber ..	9,313.5 cubic feet.	15,614 cubic feet.
Fuelwood ..	65 cords ..	215 cords.
Bamboo ..	520 bundles	848 bundles
Miscellaneous	6 bundles.	21 bundles.

389. A large drop is noted in the utilisation of products from the Government forests between the years 1955 and 1956. This is due mainly to the fact that large quantities of timber and other forest products were wind blown on private lands and were being utilized.

390. Grenada's first circular saw mill was installed by Mr. Thomas Duncan of Gouyave during the year.

391. The installation of a timber treating plant was completed by Government at Queen's Park at the end of the year. Ten timber seasoning stacks were also completed at the same time. These are in connection with a timber development scheme which should come into operation early in 1957.

Trade and Production.

392. The following is a statement of imports and exports of wood and wood products for the years 1953—1955 :—

Imports.

Articles.	Quantities.			Values.		
	1953	1954	1955	1953	1954	1955
Lumber :				$	$	$
undressed—dressed (sup. ft.)	790,655	1,260,674	2,296,689	213,720	362,709	635,062
Shingles—No.	108,850	118,800	149,750	2,283	2,492	4,728
Other Articles	—	—	—	8,898	25,519	88,209
Matches—gross ..	17,409	19,644	16,175	23,202	26,904	19,491

Exports.

Articles	Quantities.			Values.		
	1953	1954	1955	1953	1954	1955
Timber :				$	$	$
Mahogany (sup. ft.) ..	2,865	934	2,830	784	259	794
Other Articles ..	—	—	—	9,180	1,463	1,077

393. Figures are not available for the year 1956, or for the quantities of fuelwood and timber cut on private estates. Yields from government forest reserves have already been given under paragraph.

Finance.

Revenue from Forestry sources for the year totalled $1,901.38 and is made up as follows :—

Timber	$ 1,130.35
Fuelwood	31.32
Bamboo	26.50
Bonus on nutmegs and mace	709.13
Mace	4.08
	$ 1,901.38

Compared with previous years the figures are as follows :—

	1954	1955	1956
Timber	$ 1,318.60	1,553.20	1,130.35
Fuelwood ..	69.36	105.50	31.32
Bamboo	92.88	101.86	26.50
Nut and Mace ..	616.46	916.32	709.13
Miscellaneous ..	96	6.66	4.08
	2,098.26	2,683.54	1,901.38

394. The decrease in revenue in 1956 is due mainly to the effects of the hurricane in 1955.

395. Expenditure incurred during the year not including salaries, is as follows :—

Head 3—Subhead 4, Forestry :—

Nursery work—Capital	$ 1,565.28	
Re-afforestation of catchment areas ..	3,856.28	
Contingencies	713.09	$ 6,134.65
Timber seasoning Depot	$ 3,094.86	
Impregnation Plant	9,407.04	
Visit of Forest Supervisor to Trinidad ..	181.30	$
Incidentals	206.18	12,889.38
Revolving Fund	$ 1,380.00	1,380.00
Total ..		$ 20,404.03

Head E. 8—Subheads 31 and 33, Scheme D. 2056—

Capital	$ 1,313.90
Other Charges	8,345.35
Total	$ 9,659.25

Education.

396. The Forest Supervisor paid a thirteen (13) day visit to Trinidad to study sawmilling, timber impregnating, nursery and planting techniques during the year.

397. A series of lectures were delivered to agricultural students by the Forest Supervisor.

398. A fifteen (15) minute address was given by the Forest Supervisor over the Windward Islands Broadcasting service.

399. The field staff continued routine advisory and educational work within their districts.

400. *Staff.*—The staff at the end of the year was as follows :—

H. H. Fraser	Controller of Forest, Windward Islands, (Headquarters at St. Lucia).
J. S. Ross	Forest Supervisor,
T. Laldee	Forest Ranger (North),
William Garraway	Senior Forest Guard (North),
Samuel Daniel	Forest Guard (North),
Norris Bain	Forest Guard,
L. Laldee	Forest Guard,
V. Honore	Forest Guard (South),
A. Alexander	Forest Guard (South),
D. Marrast	Forest Guard, Driver.

401. The posts of Forest Surveyor and Forest Ranger South remained vacant at the end of the year.

402. The following appointments were made during the year under Colonial Development and Welfare Scheme D. 2056 :—

9th September, 1956, V. Honore, appointed Forest Guard,
9th September, 1956, D. Marrast, appointed Forest Guard/Driver,
1st December, 1956, N. Bain, appointed Forest Guard,
1st December, 1956, L. Laldee, appointed Forest Guard,
1st December, 1956, A. Alexander, appointed Forest Guard.

403. The Forest Surveyor, Mr. L. F. Berkeley, resigned on the completion of his contract at the end of March. Prior to his resignation he was seconded to the Public Works Department.

404. The following leave was granted during the year :—

J. S. Ross—Forest Supervisor thirty (30) days Vacation Leave from 15th December, 1956. This Officer had not had vacation leave since 1949 and applied for seven and a half ($7\frac{1}{2}$) months; however, due to pressure of work he could only be released for thirty (30) days. He was granted fourteen (14) days casual leave earlier in the year.

William Garraway—Senior Forest Guard was granted six (6) weeks vacation leave from the 4th April.

Samuel Daniel—Forest Guard was granted six (6) weeks vacation leave from the end of May.

T. Laldee—Forest Ranger was granted two (2) weeks casual leave from the 19th November.

V. Honore—Part time Guard was away from duty for three (3) weeks due to illness early in the year.

405. A total of eighty-six (86) labourers were employed on Forestry work during the year.

406. *Miscellaneous.*—The Conservator of Forests visited Grenada several times during the year.

407. The Forest Supervisor paid a routine visit to Carriacou accompanied by the Conservator of Forests during the year.

School Gardening.

(Report by E. M. A. Welsh, Agricultural Instructor for Schools.

St. Paul's,
St. George's,
16th January, 1957.

The Education Officer,
Education Department,
St. George's.
Dear Sir,

408. Of the 54 schools of the Colony 26 received attention of some kind in Agriculture for the year 1956. This means an increase of 12 over last year's number. Of these schools 17 did fairly good work, but the year's work was taken very seriously by St. Gile's Anglican, Happy Hill R.C., St. Dominic's R.C. Birchgrove R.C. Combined, Mt. St. Ervan's R.C., St. Patrick's R.C., and Woburn Methodist.

409. Lands being released by the Agricultural Department at the Botanic Gardens, the Senior section of the St. George's Schools started their programme with talks by the Education Officer and Agricultural Officer (General) in July. These schools got personal attention twice a week.

410. A trip was made to Carriacou in December with the view of including the schools there in the programme and, especially in the case of Dover Model School, there seems to be great promise in that area. Before the survey at Carriacou, several schools not included in the project, were visited and their grounds measured for inclusion in the 1957 activities.

411. Two attempts at setting up school gardens in the town of Grenville met with failure due to land problems. It would, however, be a great incentive, if land could be procured at Grenville and even other centres where immense interest has been shown by teachers and pupils alike. It is important to note here that progress in school garden work throughout the year has been marred at some schools, either by lack of the necessary interest from the Head Teacher, or inadequate staffing.

412. In instruction, stress had been laid on the practical side of Agricultural Education. The various forms of plant reproduction, soil conservation methods, the management of local crops, simple expirements where practicable, and the care and use of tools, were taught. In animal husbandry the care of rabbits received the greatest attention. Rabbits are kept at the following schools—Beaulieu R.C., Happy Hill R.C., and Birchgrove R.C. Combined.

413. At the end of 1955 there were two Young Farmer's Clubs but four more were added to the list during the year under review. On March 8th there was a club tour involving 42 pupils to Westerhall Farm and Woodlands Sugar Factory where several lectures and demonstrations by specialists were given. These gave rise to lively discussion among club members. In the yearly competition of clubs, the schools in order of merit were as follows:—St. Dominic's R.C., Beaulieu R.C., St. Luke's Anglican, Happy Hill R.C., St. John's R.C., and the River Sallee Government. Prizes were distributed to clubs and club members by Mrs. McMillan, wife of the Administrator, at the Farmers' Achievement Day on July 12th at River Sallee, where St. Dominic's R.C. received the Gairy-Williams trophy for being the most outstanding club of the year. At the Farmers' Achievement Day, the section of the programme dealing with Budding was demonstrated. Great interest has been shown in club work generally during the year and some members have been able to save fair sums of money arising from the sale of vegetables from their small plots. Requests have been made throughout the year for the services of the Supervisor of School Gardening by various schools and clubs on tour of various farming centres in the Colony, and the Officer was in a position to attend all of them and even made arrangements for some of the visits.

No.	OBSERVATION STATION.	January	February	March	April	May	June	July	August	September	October	November	December	Total	Maximuum in one day and date		No. of days on which rain fell
		Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins	Ins.	Ins.	Ins.	Ins.	Ins.	Date.	Ins.	
1	Annandale Station ..	15·64	10·14	9·92	5·45	7·08	9·98	11·82	21·36	6.37	12·47	16·14	13·74	140·11	January 5th	4·89	271
2	Botanic Station ..	10·44	8·93	4·83	3·11	3·57	12·28	10·09	15·80	5.37	10·64	11·00	9·41	105·47	January 14th	3·72	153
3	Calivigny Estate ..	10·04	4·58	2·33	3·18	4·02	7·79	6·89	12·85	4·05	8·85	...	...	64·56	May 19th	2·18	112
4	Grand Etang Estate ..	..	..	...	..	..	...	..	..	..	..	21·27	14·36	35·63	Nov. 18th	3·80	..
5	Hope Vale Estate ..	8·59	6·55	3·69	3·20	3·38	7·67	7.69	13·31	4·38	8·71	7.39	7·20	81·76	Aug. 31st	2·90	161
6	Mt. Moritz Agricultural Station ..	12·14	5 65	4·25	2·86	3·63	9·02	9·13	14·86	4·78	7·55	9·74	..	83·79	Nov. 6th	3·00	238
7	The Park Estate ..	10·69	6·66	4·48	3·20	...	..	..	..	...	7·89	8·38	10·43	51·73	Jan. 31st	2·30	..
8	Westerhall Agricultural Station ..	7·97	3·88	2·78	2·40	4·48	5·76	7·45	11·82	4·12	7·24	5·87	6·99	70·76	Dec. 20th	2·87	188
9	Richmond Hill Prison ..	5·20	6·80	3·92	3·79	3·60	8·86	7·73	11.56	7·43	9·45	8·65	8·15	85·12	Oct. 7th	1·94	243
10	Ashenden Cocoa Station ..	13·33	9·31	8·51	4·72	3·81	10·04	8·70	13.65	4·50	9·02	9·00	12·22	107.81	Jan. 5th	3·20	292
11	Les Avocats W.W. ..	10·85	12·81	11·01	6·47	4·44	10·55	11.20	15·19	9·80	11·59	13·85	15·04	132·71	Jan. 6th	4·50	272
12	La Sagesse Estate ..	9·66	6 29	2·75	3·26	1·25	4·14	9·24	11·29	5·19	8·06	5·83	...	66.94	Jan. 5th	2·00	143
13	Boulogne Nurseries ..	9·38	3·94	3·17	2.53	3·84	7·63	7·75	9·13	5·63	7·49	...	6·94	66·83	Jan. 5th	2·06	218
14	Carriere Estate ..	8·26	2·94	2·24	2·45	3·19	5·62	7.32	5.69	3·20	4·64	16·63	4·90	67·08	Nov. 7th	7·28	153
15	Dunfermline Estate ..	9·23	3·93	2·91	1·80	2·89	5.91	6·09	10.69	4.92	6·99	14·36	4·97	74·69	Nov. 19th	4·94	127
16	Grand Bacolet Estate ..	9·84	5·73	6·12	3·48	3·57	10·91	10·91	11.07	4·08	8·79	7·96	7·58	90·04	Nov. 18th	2·63	280
17	Hope Estate ..	..	..	..	..	..	8·33	7.47	9.62	3·10	5·85	7·13	5·85	47·35	Nov. 18th	2·60	..
18	Mt. Horne Cocoa Station ..	10·76	4·20	4·63	2·98	3·70	7·76	9·12	11·07	6·27	8·90	..	6·75	76·13	Jan. 5th	3·26	214
19	Niaganfoix Estate ..	..	..	..	..	..	..	6·35	15·95	8·84	..	..	..	31·14	Aug. 14th	2·00	
20	Richmond Estate ..	...	8·80	4·80	3·07	4·56	6·96	7.99	9·95	4·73	9·61	10·41	7·05	77·93	Nov. 5th	3·16	273
21	Tivoli Agricultural Station ..	13·47	4·53	2·98	1·69	3·25	4·88	6·49	7·81	2·49	6·05	18·39	5·06	89·35	Nov. 5th	3·32	253
22	Lower Marli Estate ..	8·17	4·06	1·8.	1·71	4·00	6·79	6.77	12·82	[illegible]	[illegible]	12·97	4·65	75·98	Nov. 6th	5·12	199
23	Upper Marli Estate ..	11·15	4·74	3.47	2·27	3·74	6·01	5·64	10.78	3·91	3·51	12·97	4·65	75·98	Nov. 6th	2·75	258
24	Samaritan Estate ..	10·61	5·45	2·99	2·12	3·98	3·71	7·31	13.18	4·15	9·75	16·83	5·84	94·88	Aug. 5th	2·30	81
25	Blair Athol Estate ..	13·62	5·24	4·42	4.47	3·98	5·10	7.22	5.42	4·09	4·41	8·42	2·55	47·71	Nov. 5th	3·00	216
26	Crayfish Estate ..	..	1·72	2·69	2·64	4·00	2·09	6·92	8·06	10·22	5·67	8·76	7·67	84·63	Feb. 1st	5·50	197
27	Dumfries Estate ..	7·01	9·54	5·73	4·09	3·07	7·29	11·58	13·31	19·12	7·82	13·99	20·79	155·54	Jan. 5th	3·34	289
28	Pomme Rose Estate ..	22·87	11·28	8·06	6·04	4·28	11.70	12·26	15.82	6·29	15·42	18·20	9·86	126·75	Oct. 6th	5·50	250
29	Belvedere Estate ..	13·91	7·77	7·08	4 16	4·51	11·65	13·40	16·29	6·37	17·53	19·43	11·49	127·17	Nov. 6th	3·02	299
30	Brothers Estate ..	13·08	7·96	7·31	4·15	5·30	11·10	12·21	14·83	5·27	13·41	17·10	8·33	118·25	Nov. 5th	7·02	201
31	Dougaldston Estate ..	14·06	6·26	5·86	4·52	5·74	10·80	13.10	17.90	7·64	14·88	24·75	13.30	151·06	Nov. 5th	2·22	..
32	Maran Cocoa Station ..	14·89	10·48	10·13	6·45	..	...	...	3·91	3·61	3·41	6·84	..	17·74	Nov. 4th	2·25	94
33	Mt. Felix Estate ..	..	..	...	..	1.40	5.77	4·71	4·80	3·89	1·96	5·85	1·41	37·35	Sept. 28th	2·15	197
34	Belair Park G'vt School ..	2·77	1·00	1·58	2·21	4·22	7·17	7·46	10·77	4·37	7·23	5 95	7·01	75·09	Dec. 19th	2·06	134
35	Limlair Agricultural Station ..	9·56	5·65	3·03	2·67	3.18	5·48	6.81	11.30	4·73	9·42	..	..	59·77	Aug. 31st	1·63	222
36	Bailles Bacolet Estate ..	8·62	4·85	3·14	2·24	3·64	4·22	4·91	6·89	3·25	5·13	5·19	4·32	48·66	May 20th		
37	Woodland Sugar Factory ..	3·50	4·54	1·78	1·29										Nov. 20th		
38	Calliste Estate																